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Compressing the Bulk of Flour.

The Albany *Journal* states that Louis Napoleon, in 1853, conceived the idea that it would be practicable to compress flour so as to diminish the bulk, and yet not injure its quality. In July of that year, an experiment was made by his command to test his views. Flour, subjected to a hydraulic pressure of 360 tuns, was reduced in volume more than twenty-four per cent. On close examination it was found to possess all the qualities it had previous to its violent treatment. It was then put into zinc boxes and sealed up. At the same time, other flour manufactured from the same wheat, but not compressed, was sealed up. In October, thereafter, several boxes containing both kinds of flour, were opened and examined. The pressed was pronounced to be the best. Twelve months after this, in October, 1854, another examination took place, and with the same result. The two kinds were kneaded into loaves and baked. The pressed flour made the best bread. In March, 1855, more of the zinc boxes were opened, and on examination, the loose flour showed mouldiness, while the pressed was sweet, and retained all its qualities. Made into bread, the same differences were observable.

Useful Cement for Cast Iron Joints.

Take two ounces of salammonia, one of sulphur, sixteen of cast-iron borings or filings and bray them well in a mortar, and keep dry. When required for use, take one part of this powder and mix it with twenty parts of clean iron filings or borings, and mix them in a mortar into a stiff paste, with a little water, and it is then ready for use. A little of the fine sand obtained in the box of a grindstone improves this cement. This cement is pressed into the joint, cold, with a chisel, like putty, and allowed to stand three days, at least, before the vessel or article is used.

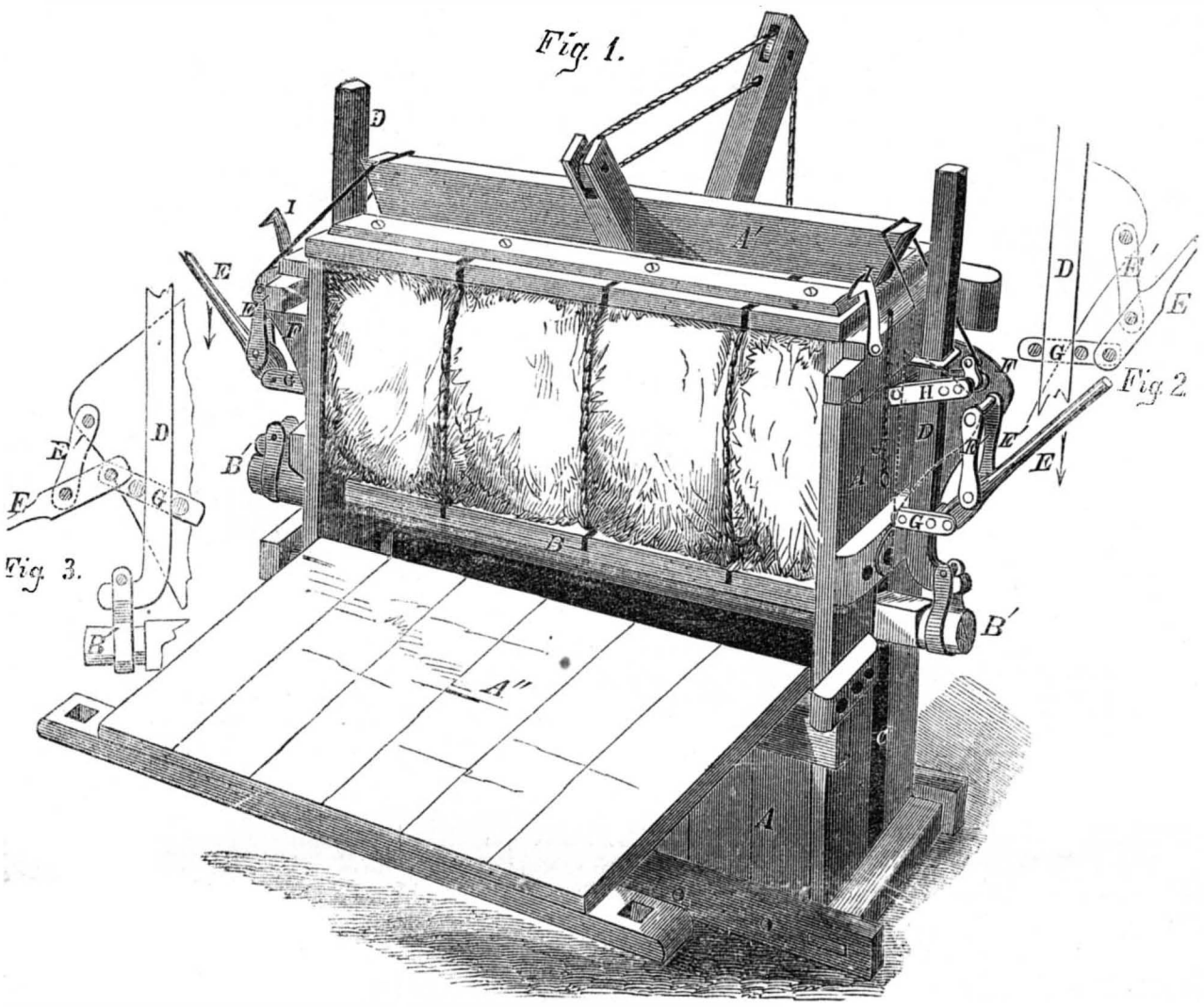
Filling around Cellar Walls.

To the remarks on page 209, on the above subject, E. Lowe, of Bangor, Me., states, in a letter, that they may lead to the adoption of a practice better than the one intended to be superseded, but still an unsafe and bad plan also. He states that for fifteen years no cellar walls have been packed around with gravel in Bangor—it had been tried and abandoned for clay filling. The clay is beaten down close to the wall, and it resists the entrance of water, consequently it does not contain moisture like gravel, or sand, or mold, and does not expand by frost. It has been found to be the best filling that can be used for cellar walls.

In Siberia and on the west coast of Africa large deposits of malleable native iron exist in a state of great purity. This iron does not contain a trace of carbon, and it is distinguished from that which is called meteoric iron by the absence of nickel in it.

The stalk of sugar cane gives forty per cent. of white paper pulp.

IMPROVED HAY AND COTTON PRESS.



New Press for Hay, Cotton, &c.

In this improvement the box or frame, A, in which the material is placed to be compressed, is made in the usual form, as shown in our engraving. The box is filled from the top, for which purpose the lid, A′, opens, being drawn up by the pulley ropes. After the bale has been tied, it is removed by letting down the side door, A″. The compression is effected by elevating the platform follower, B, and this is done through the medium of leverage applied at the ends, B′, of the platform. In the ends of the frame, A, there are slots, C, in which the ends, B′, of the follower platform, B, traverse. The follower rods, D, are attached by means of streps at their lower ends, to the platform ends, B′; if, therefore, the rods, D, are lifted, platform B, will rise correspondently and compress the hay. When the press is to be filled, the platform, B, is lowered to the bottom of the box.

The follower rods, D, are lifted by means of the levers, E, which have swinging, changeable fulcrums in the straps, E′, the latter being attached to supporting plates, F, which project from the box; one of the plates is removed, in the cut, in order to show the parts. The inner ends of levers, E, are attached to the clamp straps, G, between the bolts of which the follower rods, D, pass.

When power is applied to the levers, E, the clamp straps, G, are slightly thrown up, and their bolts grasp the follower rods, D, with a force corresponding to the power applied at E, and the followers, D, rise. The operation of the levers and clamp straps is shown more clearly in the diagrams, figs. 2 and 3. The purchase obtained at each move of the levers, E, is held by another clamp strap, H, constructed on the same principle as G, but reversed in position, so as to bind on the follower rods, in their descent; every iota of compression is therefore securely held, as fast as obtained. The straps, H, have small cords, J, attached to them, by which the follower rods, D, are liberated at pleasure by the operator, so as to descend. When the lever, E, is thrown up, the clamp strap, G, becomes loose on the follower rods, D, and descends so as to take a new hold; the position of strap G, in this movement, is shown in diagram, fig. 2.

During the first stages of compression, the throws of lever E, may be made full and long, and the pressing platform, B, will rise rapidly; but towards the close of the operation, where greater power must be applied, the strokes of the lever will be necessarily shortened, and the lever will not move far from a horizontal position; when the levers are in this position their fulcrums, in consequence of the upward incline of straps, G, are brought nearer the weight to be lifted, and the power is applied with greater effect.

It will be observed that this press is extremely simple and cheap in construction, while at the same time it is strong and powerful; it is also very compact and convenient, readily moved from place to place, &c. It may be employed for pressing cotton and other substances, with the same facility as hay. We regard it as a very excellent improvement.

Mr. Simon Ingersoll, of Greenpoint, L. I., is the inventor; the Farmers and Mechanics Manufacturing Co., of that place, being the assignees. Address the Company for further information.

Great Dams for Gathering Water.

The Columbia, Cal., *Gazette*, gives a description of a dam, of immense proportions, which is in progress of construction by the Tuolumne Water Company. This dam is situated on the South Fork of the Stanislaus river, about 45 miles east from Columbia, at the foot of a flat three-fourths of a mile in length and half a mile in width in the widest part, through which the river takes its course. The mountains rise on both sides of the flat, at a very steep angle, and are chiefly composed of bare granite. At the lower end of this flat the bed of the river passes through a narrow channel of naked rock, about sixty feet at the bottom, and rising nearly perpendicular on each side of thirty feet, and then sloping back gradually to an immense hight. In this pass the dam is being constructed, and its object is to back and hold a large body of water, which is to be kept in reserve for use when the river gives out. Hundreds of acres will be covered and a supply sufficient for 50 or 60 days kept in the dam or reservoir. Its bottom is 100 feet in the direction of the base of the river, and when finished will be 50 feet high; its length on the top will be about 300 feet. It is built of logs, (cut and barked in the vicinity,) laid crossing at right angles at a distance of eight feet, notched down and securely pinned to each other. The compartments thus formed are filled with rocks. This done, the whole face of the dam will be covered with hewn logs, laid close together, securely fastened down, the seams and joints caulked, and a stratum of sand and gravel laid on top. The gates for letting out and regulating the water will slide on the face of the dam, and move by cast-iron rack work and pinions.

Six weeks' supply can be had, during the summer season, when heretofore mining has been entirely suspended. The average depth of water will be twenty-five feet, and the supply one hundred tom streams, day and night.

What one Saw did.

At the saw mill of Warren & Co., Georgetown, Cal., one circular saw recently sawed out 7,500 feet of boards in 11 1-4 hours.

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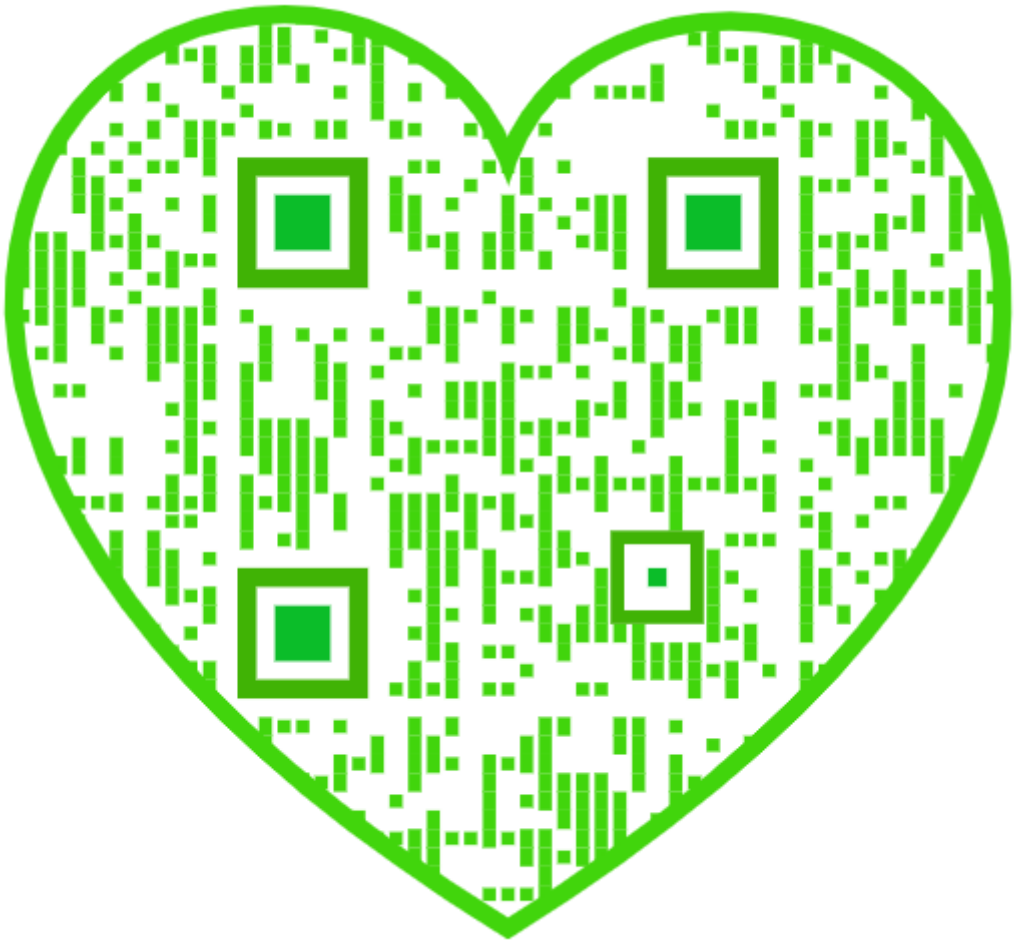

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MARCH 25 1856.

PROPELLING VESSELS—Lambert Alexandre, of New York City: I do not limit myself to the use of my propeller in any particular part of the vessel, nor to the size or shape of the buckles themselves, nor to any particular character of motive power.

But I claim regulating the motion of the propelling buckles by the combined action of the spring blocks, K, inclines, L, rollers, I I and M, and inclines, H H, substantially as specified.

NEEDLE GUNS—Gustav A. Blittkowski and Frederick Wm. Hoffman, of New York City: We make no claim to the method of withdrawing and rotating the cylinder, inasmuch as that it is embraced substantially in another application submitted by us.

But we claim, firstly, the method of withdrawing the needle by a positive force applied thereto by means of the knob upon the needle stock, in combination with the claw upon the end of the hammer, so arranged that, becoming engaged at the moment of giving the blow, it shall cause the withdrawal of the needle in the operation of cocking, as described.

Secondly, the guide tube for the double purpose of guiding the needle and acting as a stop around the touch hole, as described.

DETACHING BOATS FROM THEIR TACKLE—Charles H. Key, administrator of S. F. Blunt, deceased, late of Baltimore, Md.: I claim the use of the weight of the boat when out of the water to keep in place the contrivance for sustaining it, so that it shall no longer be sustained when the boat takes the water, and the weight is transferred to the latter, and for this purpose I claim as the invention of the said Simon F. Blunt, deceased, the contrivances described, and any others analogous thereto, whereby the same object is accomplished in a way substantially the same.

CUTTING LOAF SUGAR—Adolph Brown and Felix Brown, of New York City: We claim, first, the application and use of two or more rollers having brushes around their circumferences, and acting upon both sides of slabs of sugar, for the purpose of cleaning off the dust adhering to the same by the process of sawing, thereby reproducing the appearance of the crystals, as described.

Second, we claim the application of drums or rollers, connected together by gearing, having steel knives inserted and attached around their circumferences, forming squares and corresponding to each other, and acting on both sides of sugar slabs simultaneously, like pincers, for the purpose of cutting up said slabs into regular cubical morsels, in the manner specified.

BREECH-LOADING FIRE ARMS—Ambrose E. Burnside, of Bristol, R. I.: I claim, first, the use of a cartridge case, made partially or wholly of soft metal, in combination with a beveled mouth in rear of the barrel and the movable chamber of a breech-loading fire arm, for the purpose of packing the joints thereof, and operating in the manner substantially as set forth.

Second, I claim the movable cone seat or breech pin in combination with the soft metal cartridge case, operating in the manner substantially as described to eject the empty cartridge case, as set forth.

CARCEL LAMPS—Abraham Coates, of New York City: I claim in lamps in which the oil is forced to the wick so as to overflow, regulating the supply of oil to the burner by means of the self-emptying drip cup, operating upon the supply valve as set forth.

PRESSES FOR PUNCHING—G. H. Corliss and Elisha Harris, of Providence, R. I.: We do not claim of itself an oscillating connection between the eccentric and the plunger and follower, for the reason that an oscillating connection in the form of a common pitman has been employed.

But we claim the oscillating box, F, applied and operating in the manner substantially as set forth.

FRUIT AND GRAIN DRYERS—Charles W. Davis, of Newark, N. J.: I do not claim the separate parts of the above apparatus as my invention; but I believe their combination as applied for the purpose of drying fruit or grain to be novel and useful.

I claim the inverted earthern cone, D, fig. 2, having an adjustable parabolic rim, C, with or without the hoop, F, operating substantially as described and for the purposes specified.

STONE-DRILLING MACHINES.—Josephus Echols, of Columbus, Ga.: I claim, 1st, the cylinder, A, with the apertures, c c, in its heads, the double valve, D, with its hollow stem, d, and the tube, B, with its cups, g g', all combined arranged and operating substantially as set forth.

2d, The gripper, F, constructed as described, and operating in combination with a ring, H, as set forth, to gripe and let go the drill bar.

3d, Furnishing the interior of one of the metal cups, g g', with spiral vanes to be acted upon by the water for the purpose of turning the bar at every stroke, substantially as set forth.

[An engraving of this invention will shortly appear in our paper.]

PADDLE WHEELS—Calvin Fletcher, of Cincinnati, O.: I do not claim the curvilinear shape of the buckets as in itself new and patentable.

But I claim the construction of propellors with a series of narrow buckets of curvilinear or parabolic shape, combined and arranged in the manner set forth, or its equivalent, for the purpose of combining the greatest propelling force with the least possible resistance to the ingress and egress of the buckets in their passage through the water.

WATER COOLERS AND FILTERERS—John S. Gallaher, Jr., of Washington, D. C.: Disclaiming originating and inventing or discovering the principle of cooling water by the application solely of a saturated cloth as heretofore employed.

I claim, 1st, the application of combined chemical refrigerative agents, salt, charcoal, and gypsum, and a mechanical evaporating or air chamber, e e e, formed with a convex inverted conical sloping or tapering cover or top, and a corresponding bottom part combined in use with a saturated cloth, and through all of which means the ascending diffuse vapor is condensed, accumulated and returned into its original volume purified and cooled at one and the same time, simultaneously, in the manner described.

2d, I claim in combination with the condensing medium, e e e, and chemical refrigerative agents as described, the purifying or filtering devices, c c c d d d dx dx dx f f f J J J W W, with the capillary agents and porous disks, through all of which chemical action and mechanical devices is produced a compact individual or unity cooling filtering apparatus, substantially as set forth and for the purpose specified.

EXPLOSIVE SHELLS—Wm. W. Hubbell, of Philadelphia, Pa.: I do not claim spirally winged elongated shells, nor elongated shells with cylindrical body and spherical hinder part, either with or without tails or wings behind, nor with enlarged head, for I am aware that they have been long known, and I have many years ago experimented with them.

I claim combining or forming a series of oblique or propeller surfaces uniformly around the finger-hole, on the extreme front face of the metal, an enlarged or thickened head of an elongated shell with cylindrical body and mooth semi-spherical hinder part, substantially as described.

STEAM RADIATOR COCKS—Stephen J. Gold, of New Haven, Conn.: I claim the automatic closing of the cock on the filling of the radiator with steam, by means of a loose disk in the head of the cock acted upon, substantially as set forth.

LATH MACHINE—Jesse Gilman, of Nashua, N. H.: I claim the clutch, H, operated by or through the medium of the lever and cams, E E, in combination with the rods, f f', carriage, W, and pulleys, V X, the pulleys being connected respectively with the carriage, W, and rod, f', by the cords, c h, substantially as described, for the purpose specified.

MINIATURE CASE—Halvor Halverson, of Boston, Mass., assignor to Slocum & Watkinson, of Hartford, Conn.: I claim the combination of the metallic dished bearing plate, c, the leather or embossed covering, d, and the two frames, a b, the whole constituting one portion or half of the case, as specified.

And in combination with the metallic confining frame and the velvet covered glass holder and frame, g, I claim the frame, h, made of paste-board or other equivalent, and applied for the purpose as specified.

PILE DRIVER—J. W. Hoard, of Providence, R. I.: I am aware that in direct action steam hammers an india rubber packing has been introduced between the hammer and piston rod to avoid injury (on the hammer striking) to the piston, cylinder and machinery. Also that the piston rod has been provided with a helical spring, and the hammer or block at the limit of its top stroke had been made to hit a padded spring beam to prevent injury and assist the return of the hammer; but in all cases has the striking block proper been made of a solid character: none of such, therefore, or the mere application of a spring to a hammer—irrespective of its arrangement—do I claim.

But I claim the sectional ram, B, of the driver, constructed substantially as described, for operation in the manner specified.

FAN ROCKING CHAIRS—Konrad Kiefer, of New York City: I claim, 1st, the fans, G, when made adjustable, and when arranged and operated substantially as set forth for the purpose specified.

Second, the employment of a fan beneath the seat, constructed and arranged substantially as described and for the purposes specified.

FAN ROCKING CHAIRS—Benjamin M. Leroy, of Montgomery, Ala.: I claim a pendulum or self-acting driver so applied to any rocking chair or cradle or other rocking article of furniture that it will act by its inertia to drive the fans.

SPRING PLATFORM FOR RAILROAD CARS—Charles H. Lewis, of Malden, Mass.: I claim connecting the guard to the box platform, by elastic band springs and a check chain or its flexible equivalent, arranged substantially in manner as described, and so as to enable the guard to adapt itself to the movement of the platform, as stated.

PIANOFORTE ACTION—N. M. Lowe, formerly N. L. Murphy, of Boston, Mass.: I claim the peculiar manner in which I have arranged the spiral spring, g, upon the rod, f, as applied between the hammer and the key for the purposes set forth.

VENTILATING ROOMS—A. S. Lyman, of New York City: I claim as my improvement in cooling, drying, and disinfecting rooms the combination of a descending conduit or cold air flue with a reservoir for containing cooling materials, substantially in the manner and for the purposes described.

WARDROBE BEDSTEADS.—Henry R. and James L. Plimpton, of Westfield, Mass.: We do not confine our invention to the particular form or forms of any one or more of the parts as set forth, as many variations may be made therefrom without deviating from the principal or main features of our invention. For instance, the portion J may be used only as a support for the foot of the bedstead, and the cap or cornice to the secretary may be made separate so as to take off and form a top to the toilet table when placed thereon. Or in some instances the toilet table may be wholly dispensed with and some other article substituted in its place.

We do not claim any particular manner of constructing the base or portions A B C and c upon which the bedstead and portions of the secretary combined are supported and made to turn.

Neither do we claim the spiral springs for sustaining the bedding, or the pieces i i, or any of the catches or fastenings described.

Neither do we claim simply the device of a bedstead made to turn up or fold up into the semblance of a secretary wardrobe or other like article of furniture, as that may be and has been done in various ways without interfering with our invention.

But we claim constructing a bedstead with suitable parts attached thereto, in such a manner that when not in use as a bedstead it may be folded up and turned upright, and when in that position by placing therewith a toilet table or washstand or any other article of similar appearance, the whole apparently will form a secretary, book-case, wardrobe, cupboard, or any other similar piece of furniture, as set forth.

CARPENTERS' BENCH—J. W. Mahan, of Lexington, Ill.: I do not claim the principle of running a plane with slides on it in a box, or the slides on the edges of a box.

But I claim the construction of a work bench substantially as shown, together with the peculiar construction of the planes for jointing and facing.

SWEEPING STREETS—Joseph Miller, of Boston, Mass.: I claim arranging the main driving shaft, its clutch lever and clutch in the upper and front part of the cart body, in order that the shaft may not only be unobstructed by the earth piled in the body, but have its clutch lever disposed within easy reach of the driver.

GUN LOCKS—Edwin P. Monroe, of Charlestown, Mass: I claim the pins, i and m, in combination with the coiled spring, D, operating in the manner substantially as set forth.

LEVERS OF RAILROAD CAR BRAKES—Lucius Paige, of Cavendish, Vt.: I claim the described improved arrangement of levers and springs and their application to the brakes of a railway carriage, having swiveling truck frames, the same consisting in arranging two levers, S S U U, so that they shall cross one another and work on one common fulcrum, applying springs between said levers and on opposite sides of the fulcrum, respectively, connecting both arms of the one or the longer of said levers with the draft chain or rods of two windlasses situated at opposite ends of the carriage body or platform and respectively connecting the two arms of the other lever to the draft rod or chains of the brake levers.

VALVE MOTION—Horatio O. Perry, of Buffalo, N. Y.: I do not claim rotating or partially rotating valves loosely connected to shafts in the steam chest, nor the opening and closing of ports by the oscillating motion of the cylinder, nor the working of valves partly by the motion of the cylinder and partly by the aid of eccentrics, irrespective of the peculiar form and arrangement described.

I claim in oscillating engines the valve motion described as arranged in relation to and in connection with the loosely-attached hollow-throated and partially rotating valve, substantially as described and for the purposes set forth.

GRAIN SEPARATORS—Cyrus Roberts and John Coxe of New Hope, Pa.: We claim, first, the method of facilitating the separation of the grain from the straw by means of diverging bars, substantially as described.

Second, constructing the rear portion of the conveyor with a solid ridged bottom in such manner as to form a series of diverging channels to spread the grain preparatory to delivering it to the winnower, as set forth.

Third, the employment of shaking fingers, arranged and operating in such manner that they will rise on the forward movement of the conveyor, and thus lift and shake the straw as it is thrown forward, in combination with the carrying bars, whereby certain advantages are attained, as set forth.

Fourth, the arrangement of shaking fingers in a recess, M, in the bottom of the conveyor in such manner that they can be alternately protruded above and retraced below the carriage bars to shake the straw thoroughly, and at the same time not to interfere with its conveyance, as described.

Fifth, the adjustable turning-tail spout, P, arranged substantially in the manner and for the purposes set forth.

FIELD FENCE—J. B. Reyman, of Salem, Ind.: I do not claim forming a notch or bearing for the support of fences by means of angularly placed stakes, as such are well known; nor do I claim of itself the angular position of the stakes, n n, separately and alone considered.

But I claim forming a support for fences by means of angularly placed stakes, r r, in combination with the mode of connecting them together and to the fence by means of the wire, S, or its equivalent, the stakes and wire being so proportioned and arranged that the act of driving the stakes into the ground shall tighten the wires and bind the whole together, the different parts being arranged substantially as described.

PORTABLE FIELD FENCES.—James Rowe, of Tampa Bay, Fla.: I claim the construction of field fence panels with shouldered laps perforated as described, and with upright battens on opposite sides of the string-pieces, operating as and for the purposes set forth.

POST DRIVER—James M. Sampson, of Waynesville, Ill.: I claim the segmental wheel, B, constructed as described, in combination with pinion, A, and wheel, C, operating the drum, I, upon the shaft of C, substantially in the manner and for the purposes set forth.

SIZING HAT BODIES—Albert Spencer, of New York City: The disk wheel having been patented I disclaim the use of it irrespective of my combination, and therefore limit myself to the combination set forth.

I claim, therefore, the application and use of the combination of the disk wheel and the rubber bed when the bed receives a vibratory motion, substantially in the manner and for the purposes described.

PLANKING SHIPS—Solon Staples, of Bath, Me.: I do not claim the described parts separately considered.

I claim the combination of the shank, a, arm, b, screw, d, and brace, k, with the riged sliding tie, f, constructed and arranged substantially as described for the purpose specified.

STEAM BOILERS—O. M. Stillman and Stephen Wilcox Jr., of Westerly, R. I.: We claim, firstly, such arrangement of a series of vertical coils of different diameters that when placed the one within the other spaces shall be left between, thereby forming flues which allow the fire to act upon each of the said coils as described.

Secondly, the arrangement in combination with the coils of a reservoir or boiler placed within the inner coil, in such manner that the greatest effect of the heat upon both will be obtained, as set forth.

SYRINGE BOTTLE—John Stull, of Philadelphia, Pa.: I do not confine my claim to either of the particular modes described of constructing the apparatus.

I claim the combination and arrangement of a syringe and bottle, so that the latter shall serve as a protection case for the former as well as a receptacle for the medicament to be used thereby, substantially as described.

WATER METER—Andrew J. Sweeney, of Wheeling, Pa.: I claim the combination of the two cylinders and two pistons with one head common to both, having the ports thereto attached as described, forming a cheap and effective meter, with but little liability to get out of order.

COCK FOR STEAM, WATER, &c.—Wm. Thomas, of New York City, assignor to Abner Van Horn: I do not claim any part of the invention patented to J. Griffiths, Feb. 14th, 1854, it being no part of my improvement.

Neither do I claim the fixed screw thimble, c, or the fixed screw nut, e, of itself, which are in common use for the support of the faucet stem, and are made by others as well as ourselves; I therefore wish to be understood as not claiming the combination set forth and used by J. Griffiths.

But I claim the position in which the method is employed to raise or lower the valve, viz.: in having the screw thread cut upon the opposite end from the hand wheel and inner end of the valve stem, 5 at 6, and a corresponding screw thread cut within the fixed screw nut, e, which is of sufficient depth as to allow the screw upon the stem to work sufficiently far as to raise and lower the valve without disconnecting itself, whereby the whole arrangement can be more easily and substantially constructed, kept in order, and operated as set forth and fully described.

CREEPERS TO PREVENT SLIPPING ON ICE—Wm. H. Towers, of Philadelphia, Pa.: I claim forming the creeper of three plates, having calkins or pins on their lower surfaces and bent at their outer ends and jointed together at their inner ends in such relative position to the sides and back portion of the heel of the boot or shoe for which they are designed as will enable their outer ends to move eccentric with the curves of the said side and back portion to secure the creeper to the heel, and their security of attachment to be increased by the act of planting the foot of the wearer in walking, as set forth.

WRENCHES—Wm. Warwick, of Pittsburg, Pa.: I do not claim the rock nor the applying of a spring pawl, as these devices have been used before and are well known.

But I claim providing shank, A, with a recess whose one side, d d, is toothed and the other, e e, is smooth, in combination with a pawl, D, placed into said recess on the inside of the sliding jaw, C, in the manner substantially as described.

COTTON SEED PLANTERS—A. W. Washburn, of Yazoo City, Miss.: I claim, first, the peculiar shape and arrangement of the ridge former, C, and the adjustable channel former, F, by which their forward movement enables them, when loaded, to unerringly form a perfectly smooth channeled ridge, substantially as set forth.

I also claim the combination of the inclined flanche, k k, with the inner periphery of the rotating reed dropper, G, when they are placed in such positions with relation to the discharging apertures, and have such a degree of inclination that the said flanches prevent the seeds from being discharged out of the front or descending side of the said seed dropper, and cause the seeds to be freely discharged through the apertures in the rear or ascending side of said seed dropper in view of the operator, substantially as set forth.

BUTTER WORKER—James H. Bennett, of Bennington, Vt.: I claim the rotating bowl, B, in combination with the horizontal bar, H, and spatula, J, when arranged and operated for the purpose specified.

SELF-SETTING RAT TRAP.—Samuel Beaumont, of New York City: I claim attaching the door, H, to the platform, C, and supporting said platform when elevated or inclined by means of the swinging rods or arms, D, which are connected to the bait-hook, F, by the levers, E E. The above parts being arranged substantially as shown or in an equivalent way, and having springs, G J, attached so that the platform, when the animal nibbles the bait, will have its supports drawn from underneath it and be allowed to descend and close the door, H, the door and platform rising to their original position when the animal passes off the platform into the compartment, c, of the box.

MACHINES FOR SAWING MARBLE—John A. Bailey, of Detroit, Mich.: I claim the peculiar means employed for gradually moving the spws, H H, laterally or apart in the saw frame, C, as said saw frame descends, viz.: having the pulley, J, attached to the center of the right and left screw rod, I, and a chain, j, passing around said pulleys, K K, at the outer end of the pitman, K, the ends of the chain, j, being attached to the upper and lower ends of the rod, L, to which the outer end of the pitman is attached and on which it slides. Motion being communicated from one screw rod to the other by any known means.

CULTIVATING PLOW—Micajah Crenshaw, of Springfield, Tex.: I am aware rotating hoes have been used in connection with plows and cultivators in various forms, this I do not claim.

But I claim in combination with the series of cutting plates or disks the series of reciprocating hoes when the hoes are so arranged as to work in lines parallel with the cutters or disks and so inclined downward and rearward as to readily rise up over any obstructions without danger of clogging or choking, as set forth.

FIGURING MOROCCO—Samuel Greene, of Lynn, Mass: I claim making figuring tools for leather of agate, glass, flint, or other similar silicious materials, substantially as described,

WATER WHEEL—John Hazeltine of Goffstown, N. H.: I claim making the water partition, f, of the floats, radial; the second portion, C, tangential; and the last portion, C', to incline downwards from the shaft, D, and from the tangential portion, C, when the same or the several parts are constructed, combined and arranged substantially as described, so that the water will act against the two first by propulsion and upon the latter by its weight.

SAWING MARBLE IN OBELISK FORM.—Issachar A. Heald, of Springfield, Mass.: I claim the rock shafts, N N, provided with arms, h, having friction rollers, i, at their ends, the rock shafts being operated by the bar, o, having pins, k k, upon it between which the roller, t, on the pin, m, works, said pin being attached to the reciprocating frame, F, substantially as shown and described, for the purpose of raising and lowering the saws at each end of their stroke so that the sand may be admitted into the saw kerfs,

WRENCHES—Halsey D. Walcott, (assignor to H. D. and M. E. Walcott,) of Pawtucket, Mass.; I claim the core, F, pin, d, spring, f, and inclined bearing, i, operating in connection with the handle, C, as herein set forth.

MOLD FOR EARTHEN VESSELS, POTS, &c.—Philip Schrag, of Washington, D. C.; I do not claim the turning of earthen vessels in molds by chablons, nor the mere use of a lining to prevent adhesion of the clay to the mold.

But I claim the combination of the mold made in two separate parts, one for the sides the other for the bottom of the vessels, with the lining of the same, with india rubber or any suitable material, which is fastened on both parts of said mold, in the manner and for the purpose substantially as described.

RAKING AND LOADING HAY—D. H. Thompson, of Fitchburgh, Mass.: I claim the combination of levers, k, with rakes, E and G, when operated substantially as shown for the purpose specified.

COTTON HILLERS—A. W. Washburn, of Yazoo City, Miss.: I claim the lifting up plates, e e, of my improved cotton hiller or their equivalents, when arranged and operating in conjunction with the governing plates, d d, and the hilling plows, c c, substantially in the manner and for the purpose set forth.

COTTON SCRAPERS—A. W. Washburn, of Yazoo City, Miss.: I claim the bevel wheels for supporting and guiding the machine when they are arranged in conjunction with the side scrapers, I I, and the thinning out cutters, G, or either of them, substantially in the manner and for the purpose set forth.

GRAIN AND GRASS HARVESTERS—Abner Whiteley, of Springfield, O.: I do not claim the segmental plates, D D, separately, as used to change the hight of cut in relation to the frame. B B', or their use when attached to the main frame for the purpose of rendering the cut adjustable in hight.

But I claim, first, forming a joint at a, by means of the plates, D D, plates, E E, and the lugs as described, of sufficient strength to support the ground wheel, A, and retain the driving cog wheel in gear while running, without any other connection with the main frame, C C.

Second, I claim placing the drivers' seat on the opposite end of the frame, B B', from the joint at a, in such a manner that the driver's weight, when seated on it, shall balance some portion of the frame work and c of the machine, and throw the weight thus made to balance each other on to the wheel, A, while the angle of the cutters and fingers is presented.

Third, I claim bracing the finger piece so as to make it self-supporting as described, and for the purposes set forth.

PRINTING CYLINDER—Justus Webster, of Boston, Mass., and Samuel H. Folsom, of Lowell, Mass.: We claim the construction of the printing cylinder, consisting of metallic rings or disks placed upon a shaft side by side, the longitudinal marks upon the paper that is printed by it being produced by those disks having an unbroken perimeter, while the intermediate disks which produce the cross lines have a broken or toothed surface, the combined disks being secured to the shaft by a spline with suitable collars and nuts at the ends as described.

HAND CORN PLANTERS—Wm. Jenks, of Alexandria, Va.: I claim the bolsters, E, and distributor, F, in combination with the point, C, when arranged and operated for the purpose specified.

ASH SIFTERS—Chas Jones, of Brooklyn, N. Y.: I claim the use of the seive in combination with the double acting cranks and rods for suspending the seive, for the purposes and in manner of arrangement of parts in any suitable ash box, substantially as set forth.

SCYTHE FASTENING—Thos. C. Ball, of Walpole, N. H., assignor to Nath'l. Lamson, of Shelburne, Mass., I claim the cylinder, E, constructed arranged and operating substantially as set forth.

HARVESTER CUTTERS—John H. Manny, of Rockford, Ill., assignor to Peter H. Watson, of Washington, D. C.: I claim the reversible duplex sickle, substantially as described.

REGULATING VARIABLE CUT-OFFS FOR STEAM ENGINES—Henry S. Hopkins, (assignor to Hopkins, Hendrick & Peckham,) of Providence, R. I.: I claim combining the reversed inclined plane, S, with the main inclined plane of the regulator and valve mechanism described, the same being to operate in manner and for the purpose substantially as specified.

I also claim combining the movable stop block, T, or its mechanical equivalent, with the two inclined planes, B and S, the same being for the purpose as set forth.

HORSE POWER—Richard Hunt, of Freeport, Ill.: I claim the combination of the central pivot and annular track secure to the ground as described, with a master wheel fitted with a central eye and an annular series of conical supporting wheels, whereby the usual supporting frame to combine these several parts is dispensed with, while the site and steadiness of the master wheel is maintained, as set forth.

CISTERNS—Wm. D. Bartlett, of Amesbury, Mass. Antedated Feb. 19th, 1856: I have described the construction of my cistern for obtaining water from the earth.

I claim a cistern constructed substantially as described or in any equivalent manner, for the purposes set forth.

RE-ISSUES.

WORKING AND STOPPING CHAIN CABLES—Thomas Brown, of London, Eng. Patent dated July 25th, 1854. Patented in England April 20th, 1847: I claim the arrangement of the capstan, the removable rollers, and the sockets for said rollers in such a manner and having such relations to the hawse holes, chain rocker, deck pipes, and under lifting stoppers that the chain cable can be continuously hove in by means of said capstan and rollers or be directly run out of the lockers without any previous overhauling, substantially as set forth.

I also claim the flaring and radially flanched annular recess in the capstan when it is given such a shape that in handling a chain cable the series of cavities in the faces of said recess will so perfectly adapt themselves to the varying lengths and widths of the links of the cable that it can be safely and securely handled when the cable has only a partial turn around the capstan, as set forth.

I also claim the arrangement of the described under lifting bow stoppers and after stoppers, by which more cable can gradually and controlably be given to a vessel while riding heavily at anchor, substantially as set forth.

SAWING MACHINE—Wm. P. Wood, (assignor to himself and John S. Gallaher, Jr.,) of Washington, D. C., and John S. Gallaher assignor to Wm. P. Wood. Patent dated Feb. 26, 1856: I claim attaching saws to parallel rocking beams by means of swivel bearings.

I also claim the reversible graduating scale gauge, in combination with the saw table, substantially as set forth.

SEWING MACHINES—Sidney S. Turner, of Westboro', Mass., assignor to Elmer Townsend, of Boston, Mass. Patent dated Aug. 22d, 1854: I claim the arrangement of a hook or hook needle underneath and so as to work up through the feeding bar, L, in combination with the arrangement of the presser. M, above the feeding bar, and so as to press downwards towards it, substantially in the manner described, such enabling me to obtain an important advantage in operating by the single chain stitch sewing machine.

I also claim in a chain stitch sewing machine arranging and operating the awl and the hook needle as described, that is, so that they may not only pierce in opposite directions the material to be sewed, but be withdrawn in opposite directions therefrom.

I also claim in combination with the mechanism for giving the vertical movements to the needle the slots, a b c, and the screw or pin, F, or mechanical equivalents therefor, for producing reciprocating semi-rotative movements of the needle during the vertical movement of it substantially in the manner and for the purpose described herein.

Original Picture of Hampden.

John Macgregor, M. P., for Glasgow, has presented to the U. S. Government, through the Hon. James Buchanan, late Minister to England, an original portrait of that champion of freedom, John Hampden. It is one of the only two portraits of him in existence. It has arrived at Philadelphia, and has been publicly exhibited for a few days at the Custom House in that city.

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[From the Louisville Courier.]

Hemp and Flax Culture.—Machines for Cutting and Dressing Wanted.

Amid the multiplicity of agricultural improvements that have been introduced for the relief of the agriculturist, it is a little to be wondered at that no efficient machines have yet been invented to meet exactly the wants of the farmer in the three important operations of cutting, breaking, and dressing hemp and flax.

We regard hemp and flax as among the most important crops that are grown by the American farmers. Indeed, they now occupy a more conspicuous place among the products of the soil and in the trade and commerce of our country than cotton did at the time Whitney brought to light his cotton *gin*—an invention which has caused an increase in the product of the great staple of cotton, from a few thousand dollars to *one hundred and three millions of dollars annually*, and which now exerts a greater influence upon the commerce and manufactures of the world than any other product.

The culture of cotton is limited to the southern or warmer portions of our country, while hemp and flax may be grown in any State or territory possessing soil of sufficient richness for the production of wheat or corn.

If the proper machinery for cutting hemp in the field, and the preparation of the fiber were introduced, the trade arising from the manufacture of these materials, like the trade in cotton, would be co-extensive with civilization, and increase to an amount almost incalculable.

A number of machines have already been invented for the preparation of flax fiber, which perform the work well, but these require further improvements to render them capable of accomplishing the work with greater expedition.

With the light we already possess in the manufacture of harvesting machines we can see but little difficulty in the way of constructing machines, that will cut hemp in the field, as perfectly as wheat is now cut. But in the machinery for breaking and dressing the fiber we are not so far advanced; although to perform this operation *perfectly* there is nothing half so intricate, or that requires machinery near so complicated and difficult to make as the Hoe printing press, or hundreds of other machines now in every-day use.

Machinery for the perfect performance of these operations *will* be made, and we believe at no distant day; and when accomplished it will be so simple in its construction and operation that the world will wonder, that the thing was never thought of before.

Some six months since, Mr. M. M. Manly, an extensive marble manufacturer of Vermont, made known through the columns of the Scientific American (a paper that is, or should be taken by every mechanic, artisan, and man of science in the country,) that an invention was needed for sawing tapering forms in marble, and offered a prize of $10,000 for such an invention. Within the short period we have named, sixteen patents have been granted for machines of this character, several of which are now doing satisfactory work. A number more of these machines are before the Commissioner of Patents waiting their turn for examination, while others still are in a state of progress of construction.

This want was no sooner made known to American inventors than a hundred minds were at once engaged to meet it, and in six months the demand is more than supplied. So valuable have some of these machines proved that their inventors have refused the $10,000 offered, and one of them has sold the right to be used in a single establishment alone for $1000 and such is its efficiency that it is said it will pay for itself the first year. The marble interest of the State of Vermont is set down at $15,000,000, and the value of these inventions throughout the country can hardly be estimated.

Now, had not inventive minds been called to this subject, and stimulated by the proffered reward by Mr. Manly, it would probably have been years before any invention would have been brought to light to meet this particular requirement, although the work of marble cutting is carried on in the midst of the inventors.

Let some one or more of the enterprising hemp growers of Kentucky or Missouri make known through the Scientific American, published by Munn & Co., New York, that such machines are wanted, and offer a reward of $10,000 or $20,000, for such as will perform the work to satisfaction, and we venture the prediction that in twelve months the demand will be supplied by more than one inventor, and result in making fortunes to the offerer, and add millions to the annual value of this great Western staple.

In offering a prize of $10,000, or of even twice that sum for a machine that shall successfully cut hemp uniformly close to the ground, and lay it off in even and compact bundles as it advances; and an offer of $20,000, or even $50,000 for a machine that shall break and dress hemp or flax with expedition, as well as it is done by hand, the person or persons making the offer run no risk, for if the machines do not meet the requirements, the money is not expected to be paid. But if the machines operate successfully, they will be worth to the parties making the offers several times the amount of the highest sums we have proposed.

[The above interesting article is from the pen of H. P. Byram—an able writer upon agricultural subjects. His suggestions if adopted will surely bring about the results he aims at. They are certainly worthy of consideration.

The Decks of Ships.

Messrs. Editors—Not long since I saw an article in the Scientific American concerning ships' decks, and I perfectly agree with the views therein. The deck of vessels are not half strong enough; let our shipwrights say what they will, and follow their old-fangled notions as long as they can, it is time some one should break through their stupidity, and fasten the decks as they fasten the sides; let the plank be strong, the beams hard, and put in spikes and bolts of three times the ordinary length. I never saw a ship built, but I have seen a great many broken up, and new ones, too, and the first place they fail is in their decks, and as soon as the deck is gone, so is the ship.

The ship *Stingray*, built in New York, and stranded on the south side of Long Island, it was said, was a good ship; I do not know who built her, but that is of no consequence, only if she had been *well* built, she might have been saved. She had pine beams, and the spikes went into them scant three inches; a smart man could have pulled them off. As soon as there came any strain on them, her deck ripped up, and she filled with water; her cargo, worth a quarter of a million, was nearly destroyed, and the ship was lost, when, if her deck had been a little stronger, she would have held together a little longer, her cargo would all have been saved, and so would the ship. It is not her alone, but I can name a dozen similar cases that have come under my own eye. F. Dominy.

Fire Island, N. Y.

Errata.

Messrs. Editors—Your types made sad work with my communication on page 194. The whole is made unintelligible.

$v=\frac{g}{m}p$ is changed to $v=g+mp$.

$p=\frac{v}{g}m$ is changed to $p=v+gm$

$p=\frac{v}{g}wv$ is changed to $p=v+gwv$

and $p=\frac{w}{g}v^2$ is changed to $p=w+v^2$

Very respectfully, J. B. Conger.

Brittle Annealed Iron.

Messrs. Editors—I notice that a correspondent assures you the piece of iron sent by me, and described on page 184, is no curiosity. All that may be; but to me, and all others in this vicinity, it is still a curiosity, even if gray iron was sent through mistake, as he suggests. The fracture is a curiosity for any iron. The iron was received here about one year ago, and the parties sending it were notified of its defects but they never pretended it had not been annealed, made no allowance in the price on account of its being brittle, or even apologized.

One curiosity connected with the iron is, that some parts of the same piece are tough, while other parts are brittle. The subject has been looked into further than your correspondent is aware of. It is still a curiosity to me. A. Hotchkin.

Schenevus, Otsego Co., N. Y.

McCormick versus Manny's Reaper.

The decision of the Court in the above case, noticed by us on page 154, has been published in pamphlet form, and is a valuble acquisition to patent jurisprudence. The first patent of McCormick was obtained in 1834, and the invention described in it has been public property for a number of years, so there was no infringement of it in the question. The principal features of complaint were the infringement of McCormick's patents of 1845 and 1847, the one embracing the "divider" for separating the grain to be cut from that to be left standing; and the other a peculiar arangement of the raker's seat on the platform.—Manny used both a divider and a raker's seat; but the claims of McCormick's patents only embraced combinations; and the Court held that none of the combinations (which were useful in themselves) were infringed by Manny, because he employed different combinations. Dividers and rakers seats were used in reaping machines before McCormick used them; his improvements the Court held to be distinct from the defendants. It has been stated by some persons that a seat cannot be used with a reel on a Harvester without infringing McCormick's patent of 1847, but Obed Hussey used a rakers' seat in connection with a reel before McCormick, so that this is not the feature of McCormick's invention. It consists in placing the driving wheel back, the gearing forward, and shortening the reel so as to balance the machine when the raker sits or stands on a certain part of the platform.

The decision says:—"Now if a raker be seated on a different part of the machine and where he can rake without balancing the machine, and without interruption from the reel, it is a contrivance and an invention substantially different from McCormick's. To seat the raker on Manny's machine does not re-require the same elements of combination that were essential in McCormick's invention." This is very decided and clear. The Court therefore decided that the reel and rakers' seat in Manny's machine did not infringe the plaintiff's patent.

Gold Extracting Invention Wanted.

The following is from the Shasta, (Cal.,) *Republican*: "Stillwater creek is situated on the east side of the Sacramento, about 12 miles north of Quartz Hill. We are informed that the gold upon this stream is so exceedingly fine that the miners find it impossible to save a sufficient amount to pay wages, although it is abundant in the dirt. There is no doubt, were some effectual mode discovered by which the fine flour gold could be saved, that both quartz mills and placer mines would be worked to a hundred per cent. more profit than by the present defective system.

We would cordially recommend to some of our down-east Yankees who are torturing and racking their brains to invent improvements in clothes-pin, foot-stoves, hooks and eyes, hen-coops and baby-jumpers, that they devote some of their invaluable and peculiar talent to improvements in mining implements.

Here is a vast field for the exercise of ingenuity. We have seen with our own eyes the gradual advances which have been made in the art of gold mining, and we know that the present advanced state of the art has been attained here in California by slow and uncertain degrees. We, ourself, have a very vivid and distinct recollection of washing out about ten dollars a day in 1849, with the aid of a frying-pan and jack-knife, and we have not forgotten the feelings of envy with which we regarded the superior ingenuity which was displayed by an enterprising and philosophical negro, the proprietor of an adjoining claim.

The colored gentleman had, like us, been for some weeks engaged in the pursuit of knowledge under difficulties, with a pewter spoon and tin pan. At last he came to the rational conclusion that a return of from ten to twenty collars per day was inadequate to his genius, and wisely attributing the smallness of his earnings to the defective mode of operating, our colored neighbor got a hollow log, which he could roll back and forth like a rocker. With this powerful auxiliary he was enabled to more than double our earnings, at which, we confess, to have felt considerably humiliated and discouraged."

[This is a good story and well told.

A New Steam Fire Engine.

During the past week, on parts of three successive days, a new steam fire-engine was exhibited and operated in the "City Hall Park," of this city, and with gratifying success. The construction of this engine is peculiar,—quite different from any other ever brought before the public. The machinery is supported on a four wheeled truck, made of wrought-iron, and resting on strong elliptic springs, so as to run free and easy. Only one pump is employed—a rotary of Cary's patent, (illustrated on page 345, Vol. 3, Scientific American,)—which is driven by two small oscillating engines of Reed's patent, (illustrated on page 36, this Vol. Scientific American.) The rotary pump is placed on the forward end of the carriage, and the two piston rods of the steam cylinders are directly yoked to the central shaft of the pump, and immediately behind it. They are set at right angles to one another, working upwards and across the machine, giving the pump shaft a uniform rotary motion. The machinery is thus packed in a very small space, and the pump works without that jarring motion peculiar to those steam fire-engines having fixed steam cylinders and reciprocating pumps.

The boiler is peculiarly constructed; it is principally composed of a hollow square stack, standing upright, of double tubes, having the water enclosed between two heating surfaces, thus exposing a thin sheet of water to a double fire sheet. Its inventor is Mr. Lee.

One great object in a steam fire-engine is to get up steam rapidly. From the time the fire was kindled, until the steam gauge showed a pressure of 80 lbs., twelve minutes elapsed, when we were present, and the engines then started at a very good speed. At 120 pounds pressure it threw two 1 1-8 inch stream of water 174 feet horizontally, and with perfect uniformity, for nearly an hour. It is intended to light the fire when the engine leaves the house, and thus to have the steam up and ready for work when the engine arrives at a fire.

Inspection of Flour.

For some time past a number of flour dealers, and others interested, in this city, have been making efforts to effect a reform in the inspection of flour and meal; and they have formed an Association for this purpose. One object of the Association is the adoption of a proper standard of Inspection. This reform very necessary. We have been informed by those who retail flour, that no confidence can be placed in the marks of Inspectors. Barrels of flour bearing the highest mark of an Inspector do not command the highest price in the market. The brands of the millers or manufacturers of the flour are the guides of knowing purchasers. Some miller's brands not marked as the highest grades, sell for a dollar and a half per barrel more than others bearing the highest brand of an Inspector.

There are "fine," "superfine," and "extra" brands on barrels of flour; but what is the meaning of these terms? Do they indicate the quality of the flour? That is the intention, but we are assured they do not determine it, and these marks are entirely disregarded by the dealers.

What is a proper standard of the quality of good sweet flour? Is fineness the test of quality, or color, or what? Such information would be of great use to the whole community, as there is an almost total want of knowledge regarding the *quality* of flour, and the means of judging it by the inspector's mark. The quality of drugs and dye stuffs cannot be ascertained by inspection; analyses is the only method of determining their quality.

We hope the Flour Inspectors Association will establish a correct standard, and inform the public what that standard is to be, and so regulate the Inspector's brand that it may be relied upon.

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New Inventions.

Memoir of an Inventor.

The last number of the *London Artizan* contains a feeling sketch of the life and character of George Whitelaw, the inventor of the peculiar water wheel illustrated on page 208, Vol. 6, SCIENTIFIC AMERICAN. He died on the 30th of June, last year, in Glasgow, in which city he had learned his trade of engineer with Messrs. Jas. Cook & Co., to whose business he succeeded in company with R. Cook. It seems that he was the inventor of a number of useful improvements in machinery, and had twice received the medal of the London Society of Arts. A number of his water motors are in use in our country, and we believe they give out a high percentage of the power of the water. He was a learned and skillful engineer, and was of a retiring and modest disposition.

Improved Windmill.

The accompanying engravings illustrate an improvement in Windmills, for which a patent was granted to Dr. Frank G. Johnson, No. 196 Bridge st., Brooklyn, N. Y., on the 16th of Jan. 1856.

The invention consists in providing the wings of the machine with weights and springs, which are so arranged as to control the position of the wings, causing them, whenever their velocity is too great, to be more or less turned edgewise to the wind, and *vice versa*. Also in providing the wind wheel with a stop wheel, arranged in such a manner that a slight pressure on the stop-wheel has the same effect on the wings as an increased velocity of the wind, thus enabling the wings to be turned edgewise to the wind, and the mill to be thereby stopped at pleasure.

In the engraving, fig. 1 is a perspective, and figs. 2, 3, 4, sectional views of the improvements. Similar letters refer to the same parts.

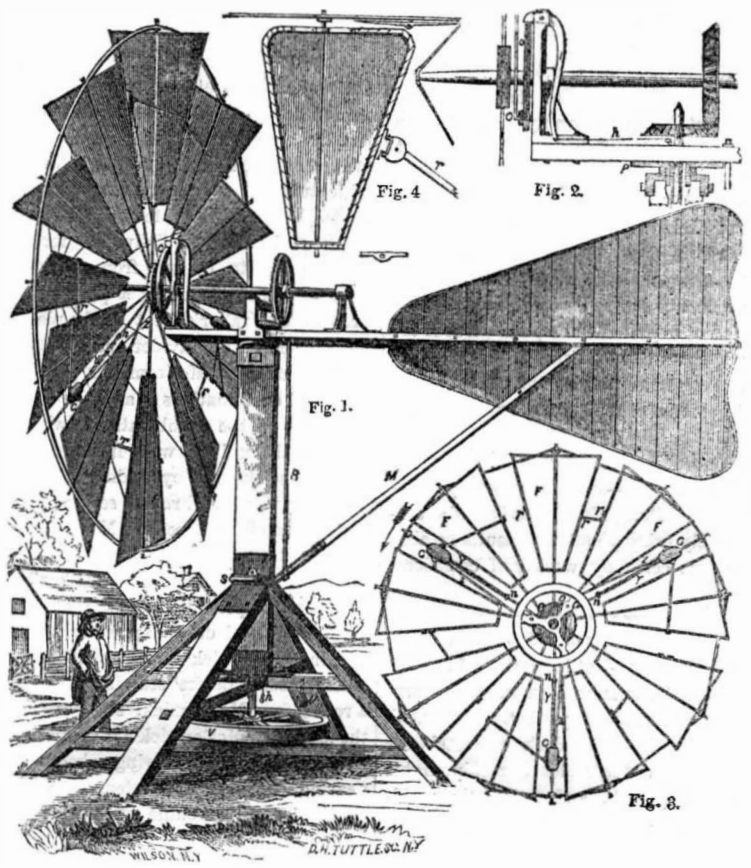
The sliding weights, G, figs. 1 and 3, connecting rods, *r*, and spiral springs, Y, constitute the governor or regulating apparatus. When the wheel revolves at its maximum velocity, the weights, by centrifugal force, are thrown out from the center, and the extremities of the rods, *r*, drawn closer together, which causes the wings to turn edgewise to the wind. The tendency of the mill now is to revolve slower and slower, until the tension of the springs shall overcome the centrifugal force of the weights, which will slip or draw them in towards the center again, and thus turn the wings flat to receive the wind, and give the mill, whenever the wind is sufficiently strong, a uniform velocity, irrespective of the variation of wind and resistance presented to it. One weight controls three wings, by connecting one to another. To give the mill greater or less velocity it is only necessary to diminish or increase the tension of the springs, Y, which is done by turning the nuts, *n*, out from or in towards the center. To provide against very strong and sudden gusts of wind, the wings are made wider on the back than on the front side of their bearings, so that they will turn back and crowd the weights out from the center, before the velocity necessary to do the same could be acquired.

The stop-wheel, C, and the rods, Z, connecting it and the weights, constitute the stopping apparatus, which operates as follows:—Thus, suppose brake I (fig. 2) to be pressing upon the stop-wheel, and thus stopping, or rather holding back, said wheel; while the main wheel turns on, then the point, O, would rise to *o*, or as far above the wind-shaft as now it is below it, and thus throw out the weights from G to *g*, and turn all the wings edgewise to the wind, causing them to stand still until the brake is released; the brake is made to operate by means of a weight hung upon cord *h*. This governor and stopping apparatus, it will be seen, revolve with and constitute a part of the wind wheel, and are independent of every other part of the mill, thus making the wind-wheel alone self-regulating, and almost self-stopping, in spite of the gale.

By means of the brace, M, and collar, S, together with the iron bar, R, the strain of the mill, in its tendency to be blown over, is brought on the bottom of the post or standard as well as on the top. If the mill were sustained by a continuation of the spindle, P, a distance down into the post, the whole mill, by the peculiar action of the wind, would acquire a rocking motion, placing the spindle and post in danger of being broken off, which liability is wholly prevented by the above arrangement. Rotary motion is transmitted from the wind-wheel to pulley V, by gearing, in the usual manner.

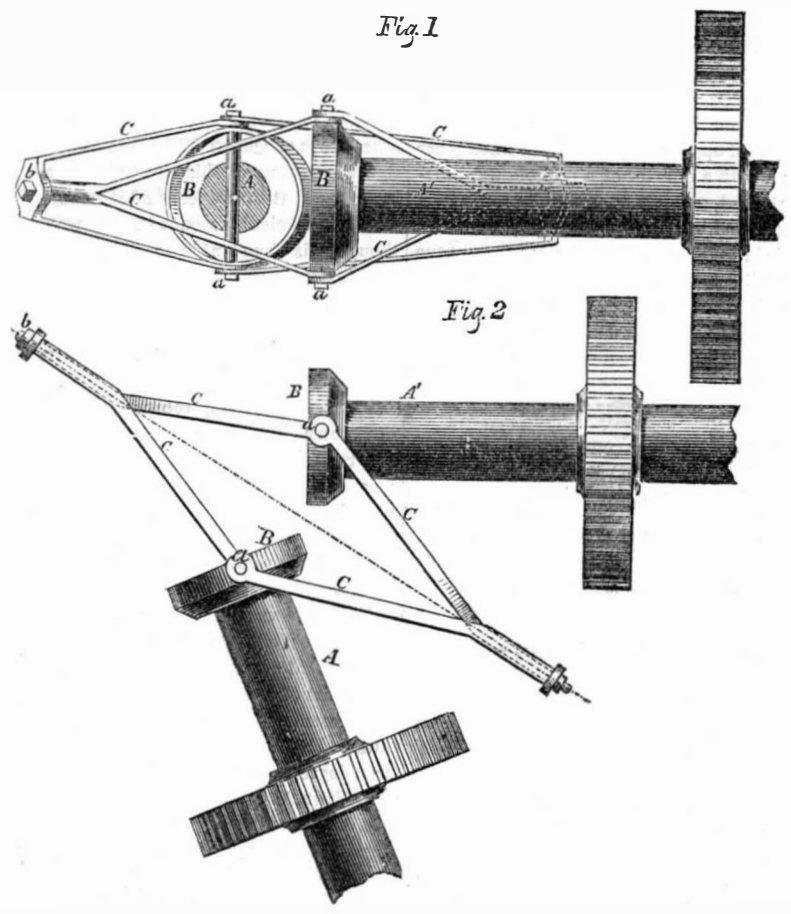
We have from time to time published so many engravings of improved windmills that our readers are, no doubt, quite familiar with their general construction, and it is, therefore, unnecessary for us to enter in a further detail

SELF-REGULATING WINDMILL.



of the present machine. It is sufficient for us to say that its parts are simple; they are nearly all made of strong iron, so as to be very durable. Many of the parts are provided with adjusting screws, whereby a proper degree of tension may be secured; the machine may also be taken down, removed, and put up again very easily. These mills are sold at prices ranging from $60 to $800, according to size. For the lowest sum a machine is furnished having about the power, during a pleasant breeze, of one man. The inventor is the author of an interesting treatise entitled "The Wind as a Motive Power." Further information respecting the present invention can be had by addressing Dr. Johnson, as above.

IMPROVED UNIVERSAL JOINT.



New Universal Joint.

The annexed engravings illustrate a Universal Joint, for which a patent was granted to Mr. Jonas Hinkley, of Huron, Ohio, Jan. 29, 1856.

The common universal joint has only been used to a limited extent, for the reason that it could not be employed except where the shafts were but a few degrees out of line. This improved joint will work without loss of power when the shafts are placed at any degree of an obtuse, right, or acute angle.

The nature of the invention consists in having a pin pass transversely through a hub or boss at the end of each shaft, and having two frames fitted on the ends of each pin on each shaft, the ends of the frames on one shaft being connected to the ends of the frame on the adjoining shaft, so that they may turn one within the other.

A A′ represent two shafts on the end of each of which a boss, B, is attached, each boss has a pin, *a*, passing through it at right angles with the shafts, the ends of the pins projecting a short distance beyond the peripheries of the hubs. On the ends of the pins, *a*, two frames or cranks, C C, are attached, two frames to each pin. These frames work loosely on the ends of the pins, and the ends of the frames on one shaft are connected to the ends of the frames of the adjoining shaft, so that one may turn within the other. See figure 1, in which it will be seen that the ends of the frames on the shaft, A′, pass through holes in the ends of the frames or cranks on the shaft, A, having nuts, *b*, on their ends.

The length of the frames depend on the angle the two shafts form with each other. If the angle is acute, the frames will be longer than if the angle is obtuse, for the connection of the frames is formed on a diagonal line passing through the angles formed by the two shafts, as indicated in dotted lines, fig. 2. As one shaft rotates, motion will be communicated to the other by means of the frames, the ends of which are allowed to turn one set within the other, the sides of the frames or cranks on each shaft, alternately approaching and receding from each other.

The above invention is extremely simple, and is intended to supersede the use of gear wheels for varying the direction of motion; the friction created by gear wheels is avoided. The journals of the shafts are also relieved from all strain or lateral pressure, and consequently are not subjected to the usual wear. The motion being smooth, like common cranks, it avoids the rattle of cog gear; the improvement is therefore admirably adapted for factories. Applied to a side propeller on steamers, it will allow the shaft to pass through the sides of the vessel into the hold, or up on deck; it will allow the propeller to be placed in the water at any depth.

The operation would be the same if only one frame or crank were attached to each shaft, but in that case the journals of the shafts would be subjected to the usual lateral pressure, and nearly the same amount of friction would be created.

Further information may be obtained on application, by letter or otherwise, to the inventor, at Huron, Ohio.

Liebig on Beer.

Liebig recently delivered a lecture at Munich, Bavaria, on the nature and uses of beer—a beverage for which Bavaria has long been pre-eminently distinguished. He stated that it did not contain matter for supplying the waste of muscle, it only was a supporter of combustion to supply warmth. The nitrogenous portion of the barley—the muscle constituent—is separated by boiling and fermentation.

A chemist of Munich, eleven years ago, asserted that the brown beer contained gum, two grains to the quart. Estimating only that which it presents as gum, a man who drinks eleven pints of beer per day would get no more gum in a whole year than a five pound loaf of bread furnishes. Beer serves to make people fat who are thin in flesh, it has the same effect as starch in bread. It has its value in supplying warmth, but not in the formation of blood. It has its use as a stimulant to the nerves, but that does not come into the account of chemistry. Liebig intimated, in conclusion, that the best proportions of food for use were one of nitrogen to three of carbon.

Dressing Circular Saws.

D. McCurdy, of Buckeye, Ohio, informs us by letter that the gumming machines in use in that part of the country, all spring the saws more or less, and that he has failed to cut a cast-steel blade, with an iron disk running at the rate of 800 revolutions per minute. He must run his sheet-iron disk with twice this velocity, at least, before it will effect the object.

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Scientific American.

NEW-YORK, APRIL 5, 1856.

Natural Right of Man to his Invention.

Our views on this subject seem to be the reverse of those advanced by the Commissioner of Patents in our last number. We have examined the question from a different point of observation, hence this may be the reason of the difference in our opinions.

The question before us is not, strictly, "has man the *natural right* to the use of his own invention," but "has he a natural right to prevent all others from imitating, re-producing a like machine, or article of invention." Judge Mason takes the affirmative and we the negative view of this question; he assumes the position that a patent is "a natural right;" we contend that it is simply the instrument of a civil contract—the *bond* of a *legal right.*

In the communication of the Commissioner, the views of J. W. Scott, presented on page 205, appear to be acquiesced in, viz., that the Indian who builds his wigwam in the forest has *no right in nature* to prevent others imitating him. This admission is favorable to our view of the question, for, according to the provisions of our patent laws, as a civil contract, he could become possessed of the power to prevent others imitating him for a limited time. The wigwam would be considered a new and useful manufacture, a product, and patents are granted for such, and not only such, but also for articles of design, such as some peculiar ornament on the front of a house. We cannot suppose that a patent could or should be granted to the Indian as a natural right for placing an ornament on the entrance to his wigwam, and yet he be denied a patent for the invention of the wigwam itself. We agree with Judge Mason in his views regarding the natural right of a person to an Island which he had caused to arise from the bosom of the ocean; but such a right does not confer upon him, as a *natural right*, the power to prevent others imitating him in making like islands, which is really the question under consideration. The man who first constructs a machine as wonderful as Alladin's lamp, cited as an illustration by Judge Mason, has a natural right to its use, and he will be protected in that right without the aid of a patent. To forcibly dispossess him of that machine, is theft in the eye of "Common Law,"—a crime for which the thief would be doomed to punishment and a prison.

The inventor and maker of a machine has a natural right to do with it anything he pleases. He can sell it, break it, give it away, or use it in secret or public; no one denies his natural right to such disposal of his property. "But," says James S. Stimpson, of Baltimore, in a letter to us, advocating the natural right of inventors to their inventions (in answer to our article on page 205,) "you are speaking of a machine—an invention consists of *an idea*, a machine is mere matter giving form to the idea." It is true that a machine is a product resulting from acts of the mind, called "ideas," but patents are not granted for ideas but for veritable machines and articles.

It is impossible to make *tangible* property of an idea. One man communicates an idea to another, and the recipient receives it into his mind, he cannot keep it out—it forces itself into it, and becomes his possessively, as much as his who communicated it to him; and at the same time, he who has communicated it, also retains possession of it. The same idea can thus come into the possession of a million of persons, and they cannot be dispossessed of it by any process of law. How then can there be property in an idea? It is impossible. Jefferson is very clear on this point: he says, "if nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself, but the moment it is divulged, it forces itself into the possession of every one. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. . . . Inventions, then, *cannot in nature* be a subject of property. Society may give an exclusive right to the profits arising from them, as an encouragement to men to pursue ideas which may produce utility."

The act of society referred to by Jefferson, granting exclusive civil rights to encourage inventors, is the Patent Law. The Government, in the name of the public, on the one hand, agrees to prevent any person making, using, or selling a certain machine, or article of manufacture (without the consent of the patentee,) for a period of fourteen years, upon the condition of the inventor revealing his secret, and informing the public how to make and use it. This is the contract entered into between the public and inventors, when they choose to obtain patents, which are legal bonds, bearing the broad protective seal of the Government.

Patents are legal rights arising from an advanced state of society. In olden times, inventors stood upon their *natural rights* (some do so now,) and many excellent inventions were then made and used in secret, and those secrets died with their authors. As civilization advanced, and governments became more enlightened, they adopted the principle of encouraging inventors to reveal their secrets for the public good, hence the origin of Patent Laws for the promotion of science and art.

The first general patent law for new improvements in the arts, enacted by any nation, only dates back to the reign of James I. of England. This law was not made either to create or protect natural rights, but simply to promote the progress of science and art. Our Patent Law is based upon that Act. The language of the U. S. Constitution, in reference to patent laws, is as follows: "Congress shall have power, &c., to promote the progress of science and the useful arts, by securing for limited times to authors and inventors the *exclusive* right to their writings and discoveries."

Patents are not granted on the fundamental idea of natural rights. In the case cited by Judge Mason, of two persons coming before the Patent Office at the same time, with like machines—each applying for a patent, we agree with him that it would not be just to grant a patent to the one who was not the inventor; but why? Not on account of natural right, but because he had not complied with the terms of the civil contract embraced in the Patent Law.

Let us quote a *bona fide* case, not a supposable one, to prove that our Patent Office does not grant patents on the principle of the natural rights of inventors to the exclusive use of their own inventions: Three men apply at the Patent Office at the same time for patents on churns, each having made oath that he believes himself to be the original and first inventor. Three separate models, alike in every respect, are presented with the applications, and no one of the applicants ever saw or heard of the others, or their churns, before—each invented his own churn independently, without any knowledge of the efforts of the others. What is to be done in this case? If a patent involves a natural right in the thing invented; *i. e.*, that every inventor has the *natural right* to the exclusive use of his own invention, then each of these applicants must be granted a patent for the exclusive use of his churn, which must entirely destroy the principle of exclusiveness, as each patent would contain the feature of excluding the others. But the Patent Office, instead of granting each applicant a patent, upon the principle of natural right and exclusive use to his own churn, grants only one patent, and that to the person who proves, by disinterested witnesses, that he had invented his churn *first.* In this case, the two rejected applicants, instead of being protected in the natural right to their churns, are deprived of them for fourteen years, and their property in their respective churns held in abeyance for that period to the *first* inventor as a matter of national policy. The patent, in this case, is granted on a simple question of *time.* Such cases are continually being brought before the Patent Office. Such cases effectually dispose of the question of *natural* rights in patents, and places it upon the basis of the civil contract.

If patents were to be granted on the fundamental idea, that every inventor had the natural right to the exclusive use of his own invention, a vast number of patents would have to be granted every year for the very same invention, and confusion worse confounded, regarding patents, would soon reign throughout the Commonwealth.

That which is called "patent property," is entirely different in its nature from that of real estate, like a house or a farm. The two are often placed on parallel lines and compared together. This, we contend, should never be done. The person who purchases a farm of one hundred acres, cannot prevent another person from purchasing and using a like farm. The farm cannot be re-produced, and ownership in it does not involve the exclusive principle contained in patents, which prevents the reproduction by others than the patentees, of like machines to those described in their patents. Owners of real estate and their legal heirs are never dispossessed of their property, upon the principle of expediency, without a full equivalent paid in return. Patent property is so entirely different from that of real estate, that when a patent expires, no act of dispossession takes places towards the patentee; he simply loses the *power* of being able to *dispossess* others of tangible property which he never owned. Upon the basis of the civil contract he ceases to wield the power of exclusion. He and his heirs have still the natural and moral right to make and use his invention, and of this they are never dispossessed.

Our views on this subject are the same as those entertained by the ablest writers on the subject. We have already quoted that of Jefferson, who was a member of our first Patent Board, for several years, and who had examined the subject thoroughly. Thomas Webster, an English Patent Barrister, in his work on Patent Laws, says, respecting patents:—"The conferring of patent rights may be considered as having the following objects in view: to reward the inventor for his ingenuity, and for the benefit which he has conferred on the public; to secure to him a suitable remuneration for his outlay of capital, and to encourage and stimulate invention and improvements. . . . The monopoly should only be temporary; for the inventor has no *natural inherent right* to his invention.'' That is, to prevent others imitating him. Willard Phillips, of Boston, in his essay on the Legislation of Patent Rights, says, "In respect to things that can be visibly and exclusively possessed, the *producer*, or first *occupier*, is acknowledged by the laws of nature to have established his right of property by his possession, and the laws supervene to guarantee and protect that right. But the exclusive use of a discovery in the arts must originate in a conventional law; the law must be expressly passed or tacitly recognized before the right of property can exist.''

Referring to the supposed natural right of patent property, he again says, "No such natural right exists. Indeed, there is no plausible ground whatever on which to rest such a right, since the fact of one person being the *first* inventor or discoverer affords no pretence for disfranchising others (the churn case for example,) of the right, in their turn, of making and using the same discovery." Renouard, the able French author of a work on patents, clearly establishes the conclusion, that no such natural right exists. Curtis, although not so explicit on "natural right," is perfectly clear on the civil contract view of the question. He says, "his secret, the inventor undertakes to impart to the public when he enters into the *compact*, which the grant of a patent principle embraces."

We are well aware that there may be much honest difference of opinion regarding the principles of patents, for this branch of law is so intricate that Renouard calls it "The Metaphysics of Jurisprudence.'' We have devoted much attention to such subjects during the last twelve years, and the foregoing conclusions have not been hastily adopted. We consider every patent to be a sacred civil contract entered into between the public and the inventor. That contract should be faithfully kept by the public, for it loses nothing and gains much by the bargain. We look upon patent laws as a grand invention in themselves for rewarding inventors, inasmuch as they encourage men to make new inventions, and to introduce new arts. Patent Laws exhibit a wise national policy, and we do not hesitate to assert that France, England, and America, owe much, if not most of their physical prosperity—their rapid advancement in science and the arts—to such laws.

Patent Extensions.

There are now before the Patent Committee in Congress no less than seven applications for the further extension of as many different patents. We herewith subjoin a list of the same, with dates, for the benefit of the public and of all parties concerned:—

William Woodworth, Planing Machine. Patent originally granted Dec. 27, 1828. Extended by the Commissioner of Patents for seven years from Dec. 27, 1842. Extended the second time by Congress for seven years from Dec. 27, 1849. Expires, unless now a third time extended, on Dec. 27, 1856. Two applications to Congress for this third extension have been before refused.

C. H. McCormick, Grain Cutting Machine. Originally patented June 21, 1834. Expired June 21, 1848.

Nathaniel Hayward, Manufacturing Rubber with Sulphur. Assigned to C. Goodyear. Patented Feb. 24, 1839. Expired Feb. 24th, 1853.

James Harley, Casting Chilled Cylinders and Cones. Originally granted March 3, 1835. Expired March 3, 1849.

Joseph Nock, Pad-lock. Originally granted July 16, 1839. Expired July 16, 1853.

Isaac Adams, Printing Press. Originally granted March 2, 1836. Extended by the Commissioner of Patents for seven years from March 2, 1850. Expires March 2, 1857.

J. A. & H. A. Pitts, Thrashing and Winnowing Machine. Original grant dated June 29, 1837. Extended by Commissioner of Patents for seven years from June 29, 1851. Expires June 29, 1858.

It will be observed that several of the above patents have already expired, and are now public property. Their extension at this time would involve the establishment of an unjust and dangerous precedent. When a patent ceases it belongs to the people, and all persons have the right to engage in the manufacture of the article. To take this right away from a private citizen under any pretence whatever, after he has invested in it his capital and labor would be a deliberate robbery. We cannot for a moment suppose that Congress will be induced to assent to such a monstrous proposition; and therefore deem further remark unnecessary.

Mr. C. H. McCormick strikes out on a new path to obtain an extension. His patent, it will be noticed, expired some *eight years* since. Application was made to the Commissioner for extension, previous to that time, but refused. The inventor now comes before Congress and alleges that said rejection was made purely on technical grounds, and prays that authority be given to the Commissioner of Patents to review the case, receive new testimony, and decide afresh, the same as if it had never been adjudicated. This is, certainly, a curious mode of whipping the devil around the stump. Mr. McCormick ought to file a caveat upon it. Modest man! Allow his patent to expire and go into extensive public use for *eight years*, and then ask its extension, or rather for a re-adjudication, which is the same thing!

We are opposed to this whole system of Congressional patent extensions. It is without any foundation either in right or equity It grants monopolies and privileges to the rich which it denies to the poor. It opens wide the door of temptation to fraud and dishonesty. The poor inventor, who, if any one, deserves an extension, has no money or friends to urge his claims. But the rich inventor, grown strong through the money derived from his monopoly, has hosts of backers, and a wide influence. His patent, though he is undeserving, is extended without difficulty. Misrepresentation, falsehood, and money, appear to be the three great staples required for patent extensions. Whoever furnishes the largest supplies of these stands the best chance of success.

If it is right for Congress to extend one patent it is equally just to extend all. Far better

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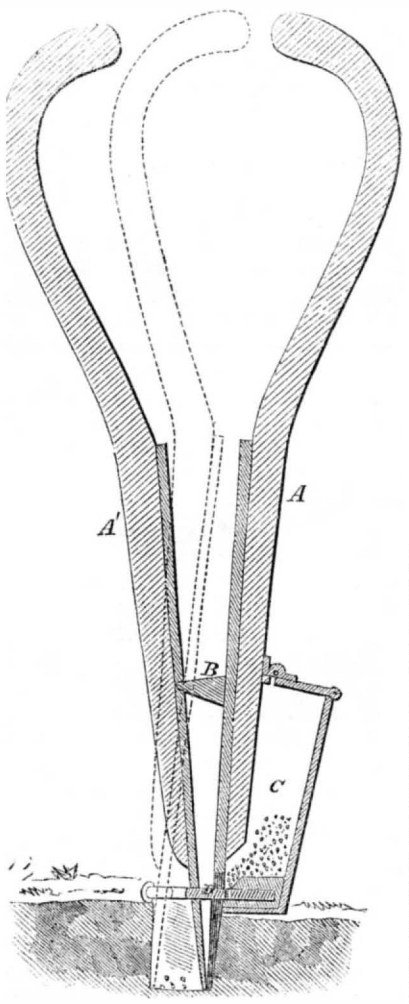
would it be to pass a general law extending the period of every patent to twenty or thirty years than to make these grants to a favored few.

Recent American Patents.

Improved Corn Planter—By D. W. Hughes, of New London, Ralls Co., Mo.—This invention belongs to the class known as the hand planting machine—a contrivance that is carried somewhat like a cane in the hand of the operator, who thrusts the lower end into the ground as he walks over the field, and deposits seed at each thrust.

The nature of the invention consists in having two blades connected by a joint or pivot, like a pair of tongs. A seed box is attached to the lower part of one blade, and a perforated slide, which fits the seed box, to the other; the slide works in the lower part of the seed box; the various parts are so arranged that by shutting the lower ends of the blades, placing them in the ground, and then forcing them apart by means of the handles the necessary hole will be made, and the corn or other seeds deposited therein.



Our engraving is a sectional view of this invention. A A' are the blades, B the fulcrum or pivot, C the seed box, and D the seed slide; the latter contains a cavity or perforation, into which the seeds drop; when the blades open their lower ends spread, and widen the hole in the ground, while the slide, D, being attached to the moving blade is drawn out sidewise, and the seeds contained in the cavity just mentioned drop into the ground between the blades. This is an extremely simple and cheap corn-planter. It will, no doubt, find a very extensive introduction. Patented Nov 20, 1855. Address the inventor for further information.

Improvement in Pile Drivers.—By J. W. Hoard, of Providence, R. I.—The large weights used in pile driving are apt to split and crush the head of the pile, owing to the sudden and tremendous force with which they descend. Great difficulty is experienced from this source in driving piles where the soil is hard; the heads of the timbers becoming so much injured that the workmen have to stop and saw them off; thus there is a waste of time and material.

These evils are remedied in the present improvement by dividing the weight into two or more parts, and placing them one above the other, with a layer of india rubber between The weights are then bound together by a spindle, and in use are raised and discharged together, the same as a solid weight. This method is said to divide the blow of the weight, and to save the heads of the piles from being crushed or split.

Butter Worker—By James H. Bennett, of Bennington, Vt.—Consists of a bowl placed on the top of a vertical spindle. The attendant holds a spatula in one hand, with which the butter is worked while the bowl rotates. A foot pedal may be employed to turn the spindle. This is a cheap and simple device.

New Rat Trap—By Samuel Beaumont, of New York City.—This contrivance is so arranged that the rat is obliged to venture on to a platform in order to get a nibble at the cheese. The first bite pulls a bolt and down falls the platform, tumbling the poor rat into a separate compartment, and leaving him a close prisoner. A spring throws up the platform and sets the trap again, ready for a new customer. This is quite an ingenious invention. We hope to illustrate it hereafter by engraving.

Marble Saw—By J. A. Bailey, of Detroit, Michigan.—This is for sawing monuments on a taper, or straight, two sides at once. The saws are spread to the required angle by means of right and left screws, on which they are strained; the screws are operated through a connection with the pitman. The taper or angle at which the saws cut may be adjusted at pleasure.

Fan Rocking Chair—By Konrad Kiefer, of New York City.—The nature of this invention consists in applying to a rocking chair a number of fans connected with mechanism so that by the rocking of the chair the fans will be put in motion and fan the occupant. What a luxury, for warm weather, is this invention.

Marble Saw—By I. A. Heald, of Springfield, Mass.—The invention consists in having two saw frames attached to a reciprocating frame in such a manner that the saw frames may vibrate laterally while working longitudinally. The degree of lateral vibration is easily adjusted, so that the saws will cut at any angle desired. A further improvement consists in having saw frames thrown up at the end of each stroke or at the termination of their forward and backward movement, so that sand, which is always employed in sawing stone, may pass into the saw kerfs underneath the stone. The use of ropes, windlass, and other gearing, to swing the saw, is thus obviated.

Saw Mill—By Jesse Gilman, of Nashua, N H.—In ordinary saw mills after a board has been sawed the carriage on which the log is fed must be gigged or run back for a new cut; to do this the attendant presses a lever, which brings a wheel in contact with a rack on the carriage, and moves the latter to the desired position. In the present improvement the carriage is moved back as soon as the board is cut by an automatic device, so that the presence of an attendant is unnecessary. Mills thus arranged are not new in themselves. The invention of Mr. Gilman consists in a novel and peculiar device for accomplishing the purpose named.

Self-Loading Hay Cart—By D. H. Thompson, of Fitchburgh, Mass.—This invention consists in the employment of rakes applied to a cart or wagon, in connection with an inclined frame, operating in such a way that the hay will be raked up and loaded into the cart or wagon by merely drawing the vehicle over the meadow. Truly the march of improvement is onward. The next contrivance, perhaps, will be a self-moving barn, that goes out into the field, fills itself with hay and then returns to its foundation.

Improved Punching Press—By Corliss and Harris, of Providence, R. I.—This invention consists in the employment of an oscillating box working in a yoke of peculiar construction attached to the plunger or follower to transmit from an eccentric the force to produce the pressure. The principles of construction are such as to obviate friction to a great extent at the moment of punching, and thus render the press easy of operation.

Recent Foreign Inventions.

Interior Sun Blinds—J. Jeffreys, of London, patentee.—Two frames are made of wire, with strong side wires and cross wires, and the one is placed horizontally above the other a few inches apart. The two frames are joined together by diagonal cross bars at the sides, and strips or pieces of cloth are stretched from one cross wire, in the inside, to the other cross wire, a little above it on the outside frame. Each strip of cloth thus placed is inclined like a Venetian slat, and the two frames are parallel to one another. The wires on which the cloth is stretched may be made to turn on their ends, to incline them more or less. The inventor terms these blinds "Solar Screens." They do not answer as substitutes for Venetian blinds, but they will screen off the rays of the sun without interfering much with the view from within an apartment.

Preserving Meat and Fish.—J. Bethel, of England, patentee.—This invention consists in slowly drying meat, fish, and vegetables within kilns, in a dry atmosphere, ranging from 90° to 130° Fah.—never being heated above the latter. The object of the invention is to evaporate all the moisture in these substances without coagulating the albumen, so that the juices of the meat, fish, or vegetables, as dried, will remain in a soluble state. If the meat were dried at a higher temperature than 130 Fah., the albumen would be coagulated, and the juices rendered insoluble.

Roasting Coffee.—T. Pougereau, of England, patentee.—This improvement consists in roasting coffee in a globular instead of a cylindrical roaster, and giving it two motions over the fire—one round a horizontal, and the other round a vertical axis. Coffee beans are roasted more uniformly in this than they can be in the common cylinder roaster.

Milk Soap—D. Pallier, of England, patentee.—The claim of this inventor is for the use of a mixture of milk and flour, or farina, in soap. Bran, we know, has been used in the manufacture of soap; it is much cheaper than flour, and will answer as good a purpose.

Bleaching Straw Pulp—In the specification of the patent, lately granted, of J. Cowley, and D. P. Sullivan, of Quennington Paper Mills, Gloucestershire, Eng., it is stated that in bleaching straw pulp, the liquor (chlorine) used is about one and a half to two degrees in Twaddle's hydrometer, in strength; that a lower strength will not bleach the pulp, and a stronger liquor will injure it, and not produce so good a color. When the straw is undergoing bleaching, it is carefully watched, and as soon as it assumes a reddish color, just merging on the white, a jet of steam is cautiously let on and continued for two hours, until the liquor has attained to a blood heat, or about 90°, at which temperature it is maintained for about two hours longer, when the straw will be completely bleached, and fit for the beating engine. Unless the steam is gradually introduced, the color will not be good.

Bleaching Rosin for Soap—J. Buncle, of Eng., patentee.—This improvement consists in melting the resinous substances by a jet of steam, and boiling the same with caustic alkali, adding a little salt when boiling, and then passing currents of air through the resin or colophane, which is then allowed to stand for a little while until all impurities settle to the bottom of the vessel. The clear is then run off and used in the soap boiler, and as resin is now used, and for the same purpose. Soap made with bleached colophane is much lighter and handsomer in color than if made with the crude resin.

Notes on Ancient and Curious Inventions.—No. 1.

We purpose, in a series of articles, to describe a number of American inventions, respecting which there is an absence of general information. The Colonies, prior to the Revolution, appear to have had, and did exercise the power of sometimes granting patents by special acts, for new inventions, and the introduction of new manufactures; the crown also granted patents for the Colonies for new inventions, but it appears that these had to be recorded in the archives of the Colonies by special acts, before they became effective, and legal. After the Revolution, prior to the Federal Union, the original States, inherited the power of granting patents; this power, they surrendered to Congress by the Act of Union.

Massachusetts and Connecticut, of all the Colonies, did most by premiums and bounties to encourage new inventions and new arts, and it is a fact, that now, in proportion to their inhabitants, more patents are granted to residents of these States every year, than any of the others. This we attribute to the early encouragement given to inventors by these States; the impulse early given is still felt.

Saw Mills in Virginia—The abundance of timber in the Colonies; the demand for it in Europe, and by the colonists themselves, for the building of their houses, ships, &c., led them early to erect saw mills driven by water. In 1621, in a tract published by E. Williams, London, the description of an old saw mill used in Virginia is given. The wheel was an undershot, with a large pin wheel (sometimes called a bull-wheel, by millwrights,) on its main shaft, gearing into a wooden cog wheel secured on a second shaft, placed between two upright beams. This shaft had a crank on it, to which was secured a connecting rod attached to the foot of the saw gate, in which were three upright saws—a gang. Excepting in the use of more iron in their construction, there are many saw mills now in various parts of our country which differ but little from this old one.

Massachusetts—In 1652, the General Court of Massachusetts allowed John Clark to charge every family ten shillings for the use of his invention for sawing wood and warming houses—this privilege was granted to him for life. In 1641, the same court granted S. Winslow a patent for ten years, to manufacture salt by a new method discovered by him. In 1656, J. Winthrop, son of the Governor, was also granted a patent for twenty years, for manufacturing salt by a new process. In 1671, R. Wharton & Co., of Boston, were granted certain exclusive privileges for making tar, pitch, and turpentine.

In 1701 the Legislature offered a bounty of one farthing on every pound of hemp purchased and raised in the Province, and in 1722 it also offered premiums on linen-duck made in the Province.

Pasteboard—In 1732 a pasteboard paper-mill was erected at Ivy Mills, Pa., by a Mr. Wilkinson, from England. The pasteboard made was principally used in the cloth presses of woolen factories.

Making Straw Hats—Dressing Indian Corn.—On July 18th, 1717, Thomas Masters, of Philadelphia, petitioned Lieut. Governor Keith, of Pennsylvania, to be allowed to record two patents which had been granted by the king on the petition of the inventor's wife, Lybella, (a thrifty wife no doubt); one was for cleansing, curing, and refining indian corn grown on the plantations, to fit it for shipping;" the other was for for "weaving, by a new method, palmetto, chip, and straw hats." The petitioner stated he had projected these inventions at vast expense. His petition was granted.

Tidal Mills.—Wheels moved by the rise and fall of the tide are of very ancient date John Manson, a carpenter, petitioned the Governor of New York, 11th of February, 1700, for a patent to erect a mill to go with the tide. It is not known if this petition were granted. This inventor also stated he had invented a new method of making "a small vessel sail faster than any other," and that he had also invented a new engine.

Decay of National Health.

A correspondent of the *Tribune* has been writing a series of articles on the above subject. He states that American women are not so healthy nor robust as those of Europe, and attributes this to the use of stoves, ill ventilated apartments, and the manner of clothing themselves.

If an evil is found to exist in a nation, it never can be eradicated without destroying the cause, and until the cause is really discovered, it is wrong to speculate at random. It is our opinion that the houses of our people are as well ventilated as those in Europe; also that stoves are used in Europe as well as in the United States; and that the dress of the females on both continents do not differ much.

Stone Cement.

A cement of three parts fine coal ashes, one of red lead, three of sand, and two of chalk (by weight) made into a putty with oil, is excellent for filling up the exposed joints of stones, bricks, &c. It becomes as hard as marble.

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TO CORRESPONDENTS.

S. B., of Ind.—Imitation wines are now extensively made in the State of New Jersey from the juice of apples. We are not familiar with the processes now in practice, but it is very generally believed by the knowing ones that "drugs" are employed which had better be kept out of the human stomach. If your process is free from this objection and possesses novelty, a patent may be obtained for it. To enable us to judge on these points we shall require a full description of it, and a taste of the produce.

R. McK., of Ala.—There is no possible chance for a patent on your alleged improvement in plows. The same thing, in essence, was illustrated in the SCI. AM. nearly four years since.

C. C., of Conn.—Your improvement in water meters is a decided novelty in our opinion, and we advise you to send us a model of it without delay.

M. M. H., of N. C.—You do not appear to be aware of the fact that tubular instead of cylinder boilers are altogether used on ocean steamers. It would, as you suggest, be a piece of stupidity to use cylinder boilers on steamers. If you had been a subscriber to the SCI. AM. you would not have been so ignorant on this particular subject. It is never too late to learn. Every day brings something new.

W. L. Smith, Maxwell's Creek, Cal., is about to establish an extensive lumber business at that place, and desires to get the best shingle machine in use, and also a machine for sawing boards, plank, etc., from bolts or blocks previously prepared with a sash saw. California is opening a fine field for the introduction of new inventions.—The above request is but one of the many evidences of this fact recently brought to our notice.

J. B. C., of Tenn.—In your letter on the article describing the astronomical globe, you say, "one pole is confined by the support, while gravity attracts the whole machine towards the earth, and these two forces—the support and gravity—*balance each other*, and combined with the rotary motion of the globe, cause it to rotate horizontally." If this were so, then the globe would not revolve round the point of support, but simply rotate like a fly-wheel on a shaft, supported on bearings, the one a suspension and the other an upright—the one balancing the other. Prof. Olmstead is now engaged on the subject. Give the matter some more consideration,

E. A. J., of N. H.—Vulcanized India rabber or gutta percha would make a good roof but would be too expensive. It has never been used for roofing so far as we know.

C. T., of N. Y.—You can procure one of Vandewater's wheels of Messrs. Sharts & Co., of Albany, N. Y. We believe it is a good wheel, and it will no doubt answer your purpose.

L. P., of N. Y.—The numbers you want are all gone. Mr. C., of Tennessee has been preparing for a long time, a work on Turbines; we do not know when it may be published, but in all likelihood he will allude in it to those points wherein his opinions differ from the views of Mr. Francis.

J. C. R., of Mich.—Your views in the article you have sent, are the same as are entertained by those who believe in the nebular hypothesis, and which are so well described in Nichol's Lectures—excepting as it regards the electricity being the "essence of Deity,"—a wrong notion on your part, we believe.

L. L., of N. Y.—You will find an engraving of Sharp's Rifle in Vol. 5, No. 25, SCI. AM. The inventor resides in Hartford, Ct., we believe.

J. W. P., of Mich.—The proprietors of the Novelty Iron Work, in this city, are Messrs. Stillman, Allen & Co.

W. W., of Pa.—We undertake to publish a complete list of patents as they are officially reported to us by the Commissioner of Patents. Under no circumstances could we suppress a claim; to do that would destroy the reliability of our reports.

C. B., of Pa.—"The Microscopist," published by Lindsay & Blakiston, of Philadelphia, is the work you want.

J. H. S., of Md.—You have not given the subject sufficient attention.

N. P. B., of Ill.—It will be very difficult for you to keep the joints of your steam pipes tight. See recipts on Cements in another column. Use printer's ink for painting sacks and barrel heads.

L. T. W., of N. C.—Campbell Morfitt's book on tanning will give you the book information desired; H. C. Baird, of Phila., is publisher. You will find the names of patentees in our lists of patents.

J. T. M., of N. Y.—It will take one and a fifth actual horse power to raise 200 gallons of water 20 feet high per minute.

S. H., of Phila.—We shall not be able to publish your article.

S. Cochran, of Petersburg, Va., wishes to procure the address of a furnisher of grain cradle timber, viz., snaths and fingers ready bent to shape.

Russell & McFarland, of Oquaka, Ill.; and Lawrence N. Young, of Mill Village, Queen's Co., Nova Scotia, wish to correspond with manufacturers of the best shingle machine.

Money received at the SCIENTIFIC AMERICAN Office on account of Patent Office business for the week ending Saturday, March 29, 1856:—

J. N., of N. Y., $55; C. B., Sen., of Ind., $20; J. J. S., of Mo., $25; E. G., of Vt., $25; Q. A. F., of Ill., $25; C. G., of O., $25; W. E. S., of N. Y., $25; E. C. P., of N. Y., $25; N. N., of Ill., $30; J. R., of Ala., $30; T. T. W., of Conn., $30; E. S., of O., $35; D. Z., of Ind., $30; J. B., of Pa., $10; C. F. B., of O., $25; J. H. C., of Pa., $30; J. M. C., of S. C., $55; R. B. G., of N. Y., $30; J. G. H., of N. J., $30; J. B. H., of N. H., $20; B. J., of Va., $25; G. M. Jr., of Mich., $5; J. W. M., of N. J., $27; G. D., of O., $30; J. S. T., of Conn., $100; S. H. & M. C. W., of Pa., $30; J. H. O., of Pa., $25; B. T., of Mass., $25; A. E. K., of Conn., $25; L. B. A., of Pa., $11·50; P. H. Van A., of M. F. G., of N. Y., $30; W. D. U., of N. C., $25; J. T. Y., of O., $30; G. C. B., of N. Y., $30; H. L., of N. Y., $30; T. P., of Ala., $25; E. A., of N. Y., $30; M. & B., of S. C., $35; S. B., of Conn., $25; E. B., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, March 29:—

J. E. N., of Ind.; E. C. P., of N. Y.; Q. A. F., of Ill.; W. E. S., of N. Y.; L. B., of Ct.; E. G., of Vt.; A. M. B. of Mich.; B. J., of Va.; J. W. M., of N. J.; G. M. Jr., of Mich.; J. B. H., of N. H., J. H. O., of Pa.; L. F. B., of O.; J. B., of Pa.; L. & J. D., of Ct.; W. T., of Mass.; A. E. K., of Ct.; L. B. A., of Pa.; R. C. B., of Ill.; T. P., of Ala.; E. B., of N. Y.; H. B., of Ct.

Important Items.

TO THE UNFORTUNATE—We are no longer able to supply the back numbers of the present volume previous to No. 27, except from 1 to 12. Such numbers as we have to furnish, are gratuitously supplied to such subscribers as failed to receive them; and we would take occasion to state, that any person failing to receive their paper regularly, will confer a favor by notifying us of the fact. Missing numbers should be ordered early, to insure their receipt, as an entire edition is often exhausted within ten days after the date of publication.

MODELS—We shall esteem it a great favor if inventos will always attach their names to such models as they send us. It will save us much trouble, and prevent the liability of their being mislaid.

PATENT CLAIMS—Persons desiring the claim of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office stating the name of the patentee, and enclosing $1 as fees for copying.

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IMPORTANT TO INVENTORS.

THE UNDERSIGNED having had TEN years practical experience in soliciting PATENTS in this and foreign countries, beg to give notice that they continue to offer their services to all who may desire to secure Patents at home or abroad.

Over *three thousand* Letters Patent have been issued, whose papers were prepared at this Office, and on an average *fifteen*, or *one-third* of all the Patents issued each week, are on cases which are prepared at our Agency.

An able corps of Engineers, Examiners, Draughtsmen, and Specification writers are in constant employment, which renders us able to prepare applications on the shortest notice, while the experience of a long practice, and facilities which few others possess, we are able to give the most correct counsels to inventors in regard to the patentability of inventions placed before us for examination.

Private consultations respecting the patentability of inventions are held free of charge, with inventors, at our office, from 9 A. M., until 4 P. M. Parties residing at a distance are informed that it is generally unnecessary for them to incur the expense of attending in person, as all the steps necessary to secure a patent can be arranged by letter. A rough sketch and description of the improvement should be first forwarded, which we will examine and give an opinion as to patentability, without charge. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country.

Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps towards making an application.

In addition to the advantages which the long experience and great success of our firm in obtaining patents present to inventors, they are informed that all inventions patented through our establishment, are noticed, *at the proper time*, in the SCIENTIFIC AMERICAN. This paper is read by not less than 100,000 persons every week, and enjoys a very wide spread and substantial influence.

Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that a very large proportion of all the patents applied for in the U. S., go through our agency.

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American and Foreign Patent Attornies, 128 Fulton street, New York; 32 Essex Strand, London; 29 Boulevard St. Martin, Paris; No. 3 Rue Theresienne, Brussels.

McNAB & CARR, 153 Mercer st., New York, manufacturers of their patented Globe Valves, a full description of which will be published in the SCI. AM. in a few weeks; also manufacture constantly all kinds of water steam, and gas cocks, oil cups, &c., &c. N. B. State County, and shop rights to manufacture the improved valve, for sale. 2* 29

1856.—WOODWORTH'S PATENT Planing, Tongueing and Grooving Machines.—The subscriber is constantly manufacturing, and has now for sale the best assortment of these unrivalled machines to be found in the United States. Prices from $85 to $1450. Rights for sale in all the unoccupied Towns in New York and Northern Pennsylvania, JOHN GIBSON, Planing Mills, Albany, N. Y. 30 3m*

WM. BURDON'S STEAM ENGINE WORKS, 102 Front street, Brooklyn, N. Y.—Engines from 3 to 40 horse power constantly kept on hand, of the latest styles and patterns, with all the modern improvements. Engines from 40 to 200 horse power made to order, high pressure or with condensers. Also portable engines with boilers, and engines attached with wheels for pile-driving and wood-sawing, circular saw mills, upright engines that take up a very small space for printers' and pumping engines, steam pumps of various sizes, rotary pumps and mining pumps; also quartz mills and stampers for copper and gold; improved hoisting machinery for mines or stone quarries; also sugar machinery, sugar mills, sugar settles and vacuum pans, saw mills, grist mills, marble mills, rice mills, screw and hydraulic presses, boilers, and castings of every description. The reputation that Wm. Burdon has sustained for the last 20 years, as an engine builder, is a guarantee for his work. Miners and manufacturers will find it to their advantage to patronize his establishment, as not less than one hundred finished engines are kept on hand. With the large lot of boilers, shafting, pulleys and hangers kept on hand, orders can be shipped the same day they are received. Also a large number of second hand engines of various sizes for sale. Second hand engines bought or exchanged for new ones or sold on commission. The great facilities and perfect system and order carried on in this establishment, enables Mr. Burdon to sell lower than any other establishment in the country for the same material and labor. Advice given gratis, drawings and plans made at the shortest notice. 30 4*

CLARKE'S CHIMNEY SAFE for Churches, School-rooms, Offices, Dwellings, Shops, &c., is needed to improve the chimney. For ventilating purposes it is unrivalled. Wanted, a new rich design for parlor chimney safe. Rights for sale. Send for circulars. Apply to GEO. B. CLARKE, Patentee, 1* Leonardsville, N. Y.

NEW INVENTIONS WANTED—I will procure patents and pay all charges of introducing one or more original inventions in the housekeeping or stationery line for a share of the invention, or will purchase articles already patented. WM. BURNET, P. O. Box 4532, N. Y. City. Wanted, No. 47 Vol. X, SCI. AM. 30 2*

WOODWORTH PATENT Planing, Tonguing and Grooving Machines—The subscriber is constantly manufacturing and has now for sale the best assortment of these unrivalled machines to be found in the United States. Prices from $85 to $1450. Rights for sale in all the unoccupied towns in New York and Northern Pennsylvania. JOHN GIBSON, Albany Planing Mill, Albany, N. Y. 30 12*

A. H. BARTLETT'S HOT AIR FURNACE Now ready, and for sale at the foundry of Johnson, Cox, Cameron & Co., Spuyten Duyvil, N. Y. This furnace exceeds in power and economy any ever heretofore offered to the public. All orders should be directed to the patentee, Spuyten Duyvil, N. Y. An engraving and description of this really valuable furnace was given in SCI. AM., Vol. X. No. 25. 30 3*

ENGRAVERS WANTED—On plain and ornamental work; also one on wood. Address or apply to E. F. BACON, Engraver, N. E. corner Clark and Randolph sts., Chicago, Ill., P. O. box 2248. 30 2*

ALL PERSONS ARE CAUTIONED against recognizing, in negotiations with Silas G. Randall, of this place (now East,) a certain power of attorney given by me to him about a year and a half ago, as said power has been demanded, and is now retained against my wish.
J. HERVA JONES.
30 3* Rockland, Ill., March, 1856.

AGENCY FOR THE PURCHASE AND SALE of valuable patents and inventions, T. H. LEAVITT, No. 1 Phœnix Buildings, Boston. None but matters of real merit and utility will receive any attention. Circulars containing further information may be had on application. 29 12*

RANDALL & JONES' Patent Double Hand Planting Machines.—J. Herva Jones, Inventor and proprietor of the patent for New York, Michigan, Wisconsin, Minnesota, and Northern Illinois. Over thirty, first premiums awarded. Over fifty thousand acres of corn were planted with them in 1855. Twenty acres have been planted by one man with one machine in less than eleven hours. I challenge any man with any implement whatever to a trial test, either on time, quality, or expense of planting, or all. I will give any person five thousand dollars who will produce its superior. I have cuts and descriptions of a new marker—my own invention—which will save much labor in cultivating, which I will mail free to any who purchase my Planters. Rights and machines for sale. J. HERVA JONES,
29 2* Rockton, Winnebago Co, Ill.

FOR CLARK'S PATENT Steam Boiler Water Feeder and Indicator, the only reliable apparatus for preventing explosions, apply to SHIVERICH, MALCOLM & CO., sole proprietors, 290 Broadway, room 14.

N. B., all persons are hereby forbid making, using, or selling the above Feeder and Indicator, unless by permission of Shiverich, Malcolm & Co. Tobey & Sproat, sole Agents for the New England States, 31 Exchange street, Boston. 29 3*

THOSE SUPERIOR MACHINISTS' TOOLS—Can only be obtained of Carpenter & Plass, foot of 30th st., East River, New York, now supplying large orders, and have constantly on hand every variety and capacity, and warranted accurate and substantial in every respect. Also have on sale the entire stock of tools of a large machine shop; many nearly new, and selling very low. CARPENTER & PLASS, New York. 29 2*

S. D. HUMPHREY, Manufacturing Chemist, and dealer in all kinds of Ambrotype, Photographic, and Daguerreotype chemicals. Also all apparatus and goods used in the art. Price list furnished on receipt of a letter stamp. S. D. HUMPHREY, 545 Broadway,
29 2* New York.

THE AMERICAN PLATE GLASS CO. Having erected extensive works in East Brooklyn, (foot of North Sixth st.) are now prepared to execute promptly all orders forwarded to them, for Rough Plate Glass, for Sky Lights, Floor Lights, Pavements, Deck Lights for vessels, &c. Also an entirely new article possessing the properties and beauties of Agate, called Chalcedon. This material supersedes Marble, in its superior quality and utility for the purpose of Flooring, Mantel Pieces, Table Tops, and Ornamental Architecture. All orders left at the Office of the Company will receive prompt attention. Office 420 Broadway. Rough Plate Glass in the Sheet at the factory, 1-4 in. 35c.; 3-8 in. 35c.; 1-2 in. 40c.; 5-8 in. 60c.; 3-4 in. 75c.; 7-8 in. 80c.; 1 in. 85c.; 1 1-4 in. $1·25. Terms cash in 30 days. 27 13

PAGE'S PATENT PERPETUAL LIME KILN will burn 100 barrels of lime with 3 cords of wood every 24 hours, and save 50 per cent. in labor, &c. Kilns are used by J. Lock, St. Louis, C. Crocket, Rockland, Me., F. B. Sibley, Detroit, Mich., Wm. Baldwin, Cherry Valley, N. Y., John Sands, Armonuck, Westchester Co., N. Y., L. Thompson, Rochester, N. Y.
25 6* C. D. PAGE, Patentee. Rochester, N. Y.

STEAM PUMPS AND FIRE ENGINES—Steam Pumping Engines for wrecking purposes, Irrigating and Draining Lands, Deep Mining Shafts, Quaries, and Excavations, Railroad Stations, Factories, Public Institutions, Hotels, Gas Works, Steamers, &c. Also a large and improved class of Pumping Engines for supplying Cities, Towns, and Villages. Apply to H. R. WORTHINGTON, 28 Broadway, New York City. 25 13*

A. L. ARCHAMBAULT, Portable Steam engine Builder, 15th and Hamilton st., Philadelphia.—Saw Mill Engines on Wheels from 10 to 30-horse power. Also Hoisting, Pumping, and Pile driving Engines, from 3 to 30 horse power. 25 8*

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ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description, Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Guage, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, Machinery Oil of the most approved kind, etc.
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19 eowtf Consulting Engineer, 64 Broadway.

BALLOONS—Balloons of all sizes made to order, with printed instructions to fill and use them, comprehensive to ordinary minds. A 25 feet diameter balloon, all complete for aerial voyages, $300 Address JOHN WISE Aeronaut, Lancaster, Pa. 23 4* eow

ARTIFICIAL LEGS—Palmer's Patent—Manufactured at 378 Broadway, New York, Springfield, Mass., and 376 Chestnut st., Philadelphia, by PALMER & Co.—These legs are universally regarded, and recommended, as an invaluable boon to all who have suffered mutilation by amputation, by all of the first surgeons in Europe and America; by all the Institutes for the promotion of Arts, and by the several thousands of persons now blest with them in their daily use. Pamphlets containing the most reliable information are sent gratis to all who apply for them. 25 6 eow*

MACHINERY—S. C. HILLS, No. 12 Platt street, N. Y., dealer in Steam Engines, Boilers, Planers, Lathes Chucks, Drills, Pumps; Mortising, Tenoning, and Sash Machines, Woodworth's and Daniel's Planers; Dick's Punches, Presses, and Shears; Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c 26 6 3w

TO MANUFACTURERS AND MECHANICS—Light rooms and steady power in any quantity, from one half horse to 50 horse, in a central position and at low rates. Facilities for exhibiting or testing new inventions, By Mr. GAUDU, 102 Walker st. 27 4*

CIRCULAR SAWS—We respectfully call the attention of manufacturers of lumber to the great improvements recently introduced in the manufacture of our Circular Saws. Being sole proprietors of Southwell's patent for grinding saws, we are enabled to grind circular saws from six inches to six feet with the greatest accuracy and precision. The impossibility of grinding a saw without leaving it uneven in thickness has always been acknowledged by practical saw makers. This causes the saw to expand as soon as it becomes slightly heated in working. When this takes place the saw loses its stiffness, and will not cut in a direct line. We will warrant our saws to be free from these defects; they are made perfectly even in thickness, or gradually increase in thickness from the edge to the center, as may be desired. As there are no thick or thin places, the friction on the surface of the saw is uniform, consequently it will remain stiff and true, and will require less set and less power. Will saw smooth, save lumber, and will not be liable to become untrue. This is the oldest establishment now in existence for the manufacture of circular saws in the United States, having been established in the year 1830. Orders received at our Warehouse, No. 48 Congress st., Boston.
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ROCK DRILL—The American Rock Drill Co. invite attention to their superior machines, adapted for all kinds of rock work in quarries and mines and especially for artesian wells. They are simple in construction, powerful and accurate in operation, and can be run by hand, steam, or horse power. An engraving and full description appeared in No. 15 of the Scientific American. Apply to T. H. LEAVITT, Agent and Treasurer of the A. R. D. Co., No. 1 Phœnix Building, Boston, 17 3m*

SCHENCK MACHINERY DEPOT—163 Greenwich street, New York, keeps always on hand Lathes, Planers, Drills, Steam Engines, Woodworth's Patent Planing Machines, Belting, &c., in great Variety. Tools furnished of any size, to order, and of the best quality.
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VAIL'S CELEBRATED PORTABLE STEAM Engines and Saw Mills, Bogardus' Horsepowers, Smut Machines, Saw and Grist Mill irons and Gearing, Saw Gummers, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch.
LOGAN & LIDGERWOOD,
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WOODWORTH'S PATENT Planing, Tonguing, Grooving Machines—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Also steam engines and boilers of the best quality. Warranted to give entire satisfaction to purchasers,
JOHN H. LESTER,
25 8* 57 Pearl st., Brooklyn, L. I.

THE NEW YORK DAILY SUN—Is forwarded by the early mails to country subscribers at $4 per annum, or $1 per quarter, payable in advance. The postage under the present law is as follows: to any post office in the State of New York, 78 cents per year, payable quarterly in advance. Out of New York State, but within the United States, $1,56 per year, payable quarterly in advance. MOSES S. BEACH, Publisher,
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NORTH AMERICAN MACHINE AND COOPERAGE CO., at Elmira, Chemung Co., N. Y.—Manufacturers of Trapp's Patent Barrel Machines, being the only establishment in the world that manufactures machinery for all varieties of cooper ware, viz.: Tight Barrels, such as Pork, Beef, Whiskey, Beer, Fish, Oil, Spirits of Turpentine, Beef Tierces, Butter Firkins, White Lead Kegs, Flour, Salt, and Lime Barrels. Stave and Heading Saws constantly on hand. Also Rights under Trapp's patent for sale. M. H. FERRIS, Agent, Elmira, N. Y.
25 6*

BOILER INCRUSTATIONS—No scale will form in the boiler when Weissenborn's Patent Incrustation Preventor is used. At the same time the apparatus is the best Heater that can be obtained. Apply to E. W. SARGENT, Delmonico's Hotel, New York City. 25 12*

FILMER & CO., Electrotypers, and Manufacturers of Electrotype Materials, 128 Fulton st., N. Y. Molding Presses, Batteries, Cases, Backing Pans, Shaving Machines, Metal Kettles, Planes, Blocks, Building Irons, etc., etc., on hand, or furnished at short notice, and at moderate charges. Adams' Improved batteries and black-lead machines also for sale. 23 tf

LINEN MACHINERY—JOHN R. McNALLY Champlain, N. Y. Agent for the sale of linen machinery of every description, new and second hand. Engineers and machinists tools, and linen yarns of every number and quality. 22 13*

PATENT ALARM WHISTLE—For Speaking Pipes. The right of a limited number of the Southern States, of this valuable patent, for sale on reasonable terms. Apply to W. OSTRANDER, No. 57 Ann street, N. Y. 29 13

W. P. N. FITZGERALD, Counsellor at Law—late Principal Examiner in the U. S. Patent Office—has removed from Washington, D. C. to the city of New York, 271 Broadway, (corner of Chambers St.) As heretofore, his practice is confined to Patent Cases, which he will prosecute or defend, as counsel, before the Supreme and Circuit Courts of the United States, also before the Patent Office, or the Judges having jurisdiction of appeals therefrom. 29tf

OIL! OIL! OIL!—For railroads, steamers, and for machinery and burning—Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer.
F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 19tf

NORCROSS ROTARY PLANING MACHINE.—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks is not an infringement of the Woodworth Patent.

Rights to use the N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York.

Office for sale of rights at 208 Broadway, New York Boston, 27 State street, and Lowell, Mass, 19t

GRAIN MILLS—EDWARD HARRISON, of New Haven, Conn., has on hand for sale, and is constantly manufacturing to order, a great variety of his approved Flour and Grain Mills, including Bolting Machinery, Elevators, complete with Mills ready for use. Orders addressed as above to the patentee, who is the exclusive manufacturer, will be supplied with the latest improvements. Cut sent to applications, and all mills warranted to give satisfaction. 29tf

POWER PLANERS—Persons wanting Iron Planers of superior workmanship, and that always give satisfaction, are recommended to the New Haven Manufacturing Company, New Haven, Conn. 19 tf

NEW HAVEN MFG. CO.—Machinists' Tools, Iron Planers, Engine and Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These Tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address, "New Haven Manufacturing Co New Haven, Conn. 19 tf

HARRISON'S GRAIN MILLS—Lates Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt street, New York. 19tf

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Science and Art.

Lavender.

The climate of England appears to be better adapted for the perfect development of this fine old favorite perfume than any other on the globe. "The ancients," says Burnett, "employed the flowers and the leaves to aromatise their baths, and to give a sweet scent to water in which they washed; hence the generic name of the plant, *Lavandula*."

Lavender is grown to an enormous extent at Mitcham, in Surrey, which is the seat of its production in a commercial point of view.—Very large quantities are also grown in France, but the fine odor of the British produce realises in the market four times the price of that of Continental growth. Half a hundred weight of good lavender flowers yield, by distillation, from 14 to 16 oz. of essential oil.

All the inferior descriptions of oil of lavender are used for perfuming soaps and greases; but the best is entirely used in the manufacture of what is called lavender, to be in keeping with the nomenclature of other essences prepared with spirit.

The number of formulæ published for making a liquid perfume of lavender is almost endless, but the whole of them may be resolved into essence of lavender, simple; essence of lavender, compound; and lavender water.

There are two methods of making essence of lavender:—1. By distilling a mixture of essential oil of lavender and rectified spirit; and the other—2. By merely mixing the oil and the spirit together.

The first process yields the finest quality. Lavender essence, that which is made by the still, is quite white, while that by mixture only always has a yellowish tint, which by age becomes darker and resinous.

Smyth's Lavender.—To produce a very fine distillate, take—

Otto of English lavender .	4 oz.
Rectified spirit (60 over proof) .	5 pints.
Rose water	1 pint.

Mix and distil five pints for sale.

Essence of Lavender—

Otto of lavender . .	3 1-2 oz.
Rectified spirit . . .	2 quarts.

Many perfumers and druggists in making lavender water or essence, use a small portion of bergamot, with an idea of improving its quality—a very erroneous opinion.

Lavender Water—Take—

English oil of lavender .	4 oz.
Spirit	3 quarts.
Rose water . . .	1 pint.

Filter as above and it is ready for sale.

Common Lavender Water—Same form as the above, substituting French lavender for the British. Septimius Piesse.

Chloroform and the Blood.

At a recent meeting of the Boston Society of Natural History, Dr. C. T Jackson exhibited a vial of blood, taken from the heart of a woman who died from the effects of chloroform, inhaled at a dentist's office, and stated that it had lost the property of coagulation, was of a peculiar, dark cranberry red color, and uniformly liquid. The blood globules, in a microscopic examination made by Dr. Bacon, were found to be a little shrunken and distorted; the white globules were also deformed.

At the autopsy all physicians present agreed that the deceased came to her death from the effects of chloroform.

Dr. Jackson's particular duty in this examination was to investigate the chemical condition of the blood. He had ascertained that it contained *formic acid*, which was readily separable by distillation of the blood by the heat of a chloride of calcium bath.

The formic acid, separated, had its peculiar odor, and instantly decomposed nitrate of silver, reducing the silver to its metallic state, so that large flakes of the metal were obtained. The observation that chloroform was decomposed by the blood, with the production of formic acid, he believed to be new, and it must be regarded as an important physiological fact of no small practical moment. Three atoms of chlorine leave the formyle to combine with the blood, while three atoms of oxygen are abstracted from the blood, to unite with the formyle in the production of formic acid. Thus the blood is not only deprived of its oxygen, but it is so altered as to be incapable of absorbing vital air, and the patient dies from asphyxia.

Curious Use of the Microscope.

Recently, on one of the Prussian railroads, a barrel which should have contained silver coin, was found, on arrival at its destination, to have been emptied of its precious contents, and refilled with sand. On Professor Ehrenberg, of Berlin, being consulted on the subject, he sent for samples of sand from all the stations along the different lines of railway that the specie had passed, and by means of his microscope, identified the station from which the interpolated sand must have been taken. The station once fixed upon, it was not difficult to hit upon the culprit in the small number of employees on duty there.

Culture of Currants.

As there is likely to be a scarcity of summer fruits this year, owing to the destruction of the peach and cherry buds, &c., all who have currant bushes should bestow upon them special attention. Old and neglected bushes should have some of the old branches cut away, so as to give the young shoots a chance to fill their places, and these should be thinned out, if numerous, and shortened if long, so as not to crowd each other. Dig out the grass if any, about the roots, and apply a good dressing of manure and ashes, spading it in; and when the hot weather commences, cover the entire surface under the bushes with tan bark, sawdust, old leaves, or chip dirt; this will prevent the growth of weeds, and keep the ground moist, greatly promoting the quantity and quality of the fruit.

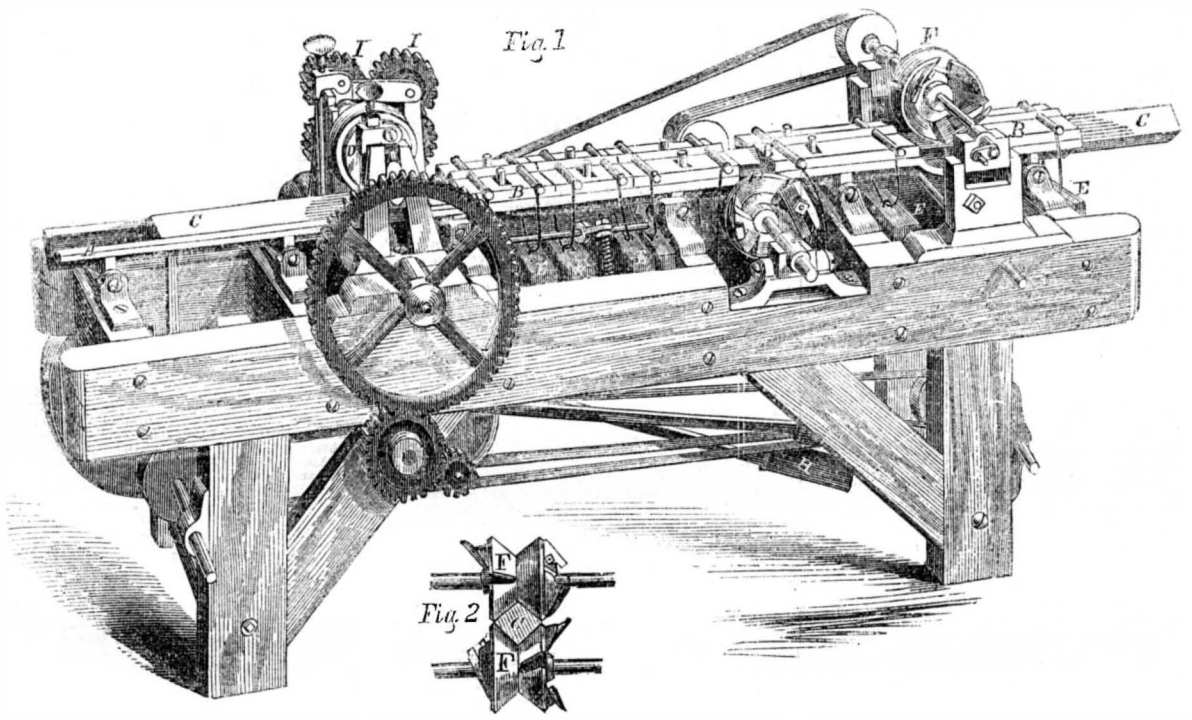
Gooseberry bushes should be treated in a similar way, only more attention should be given to pruning, so as to keep the bushes open and the leaves and fruit fully exposed to the air.

Expensive Books.

It has cost the U. S. Government one and a quarter millions of dollars, to prepare and publish the account of Lieut. Wilkes' Antartic Expedition, and yet not one in a hundred thousand of our people have ever seen it.—"That's the way the money goes."

Commodore Perry's book, giving an account of his expedition to Japan, has cost $200,000 in preparing it for publication.

IMPROVED TIMBER PLANING MACHINE.



Machine for Planing Timber.

Our engraving illustrates an invention for planing four or more sides of a stick of timber simultaneously, only two cutter heads being required for the purpose. A is a trough-shaped bed plate, extending in sections the whole length of the machine. This trough is covered with plates, B, that are Λ-shaped in their centers, so as to correspond with the trough of the bed. The timber, C, is laid edgewise in the bed, and the plates, B, rest on the timber; the plates, B, merely serve to keep the timber from lifting out of place. The timber is pushed through the machine between the bed, A, and plates, B, by the feed rollers, D; the plates, B, are pressed down upon the timber by means of the weights, E. If the timber is uneven in any part, the weights, E, permit the plates, B, to rise. F F' are the cutter heads, which are grooved, and have knives projecting inward towards the inner surfaces of the grooves. Each cutter-head is furnished with a double set of knives, one set for each side of the groove; each set of knives cuts one side of the timber. Fig. 2 shows the manner in which the cutters and timber are brought together. Four sides of the timber, it will be seen, are cut at once; by altering the form of the cutter-head it would be competent to plane sticks having six or eight angular sides, two cutter-heads only being employed.

The timber to be planed is fed in at the left end of the machine, and passes between the feed rollers; only one of these rollers appears in the cut; there are two of them placed one above the other; they are of the same shape as the cutter-heads, and a section of them, showing their action on the timber would be very similar to fig. 2.

The bearings of the feed rolls are connected with the long weighted levers, H, which hang under the machine and permit the rollers to rise and fall, according to the size or form of the timber. The pressure of the rollers upon the timber is in accordance with the weight o the levers; the rollers are, therefore, self-adjusting, and adapt themselves to the size and form of the timber. The cutter-head, bed plate, and other parts of the machine are all rendered adjustable, by means of suitable set screws. I I are compensating gear wheels, arranged to keep the feed rollers always in motion, whether they rise or fall on the timber. Suitable cog wheels, pulleys, and bands connect and move the various parts.

This machine is quite simple, and easily managed. For planing off large timbers used in the construction of churches, stores, dwellings, ships, &c., it is very effective, and saves much labor. Small sizes may also be used with great advantage in the planing of table legs, bed-posts, and prismatic stuff of all kinds. Further information can be had by addressing the inventor and patentee, Mr. Joseph W. Killam, East Wilton, N. H. Patent granted January 22d, 1856.

Color Blindness.

Color blindness, or Daltonism, as it is often called, has of late attracted great attention. Sir David Brewster, Dr. George Wilson, Prof. Wartmann, and others, have investigated the phenomenon with surprising success; and the *North British Review* has a paper on the subject, in which it is said: "Till within these few years this affection of the eye was supposed to be confined to a small number of individuals; but it appears from the calculations of various authors, that *one* person out of every *fifteen* is color blind.

According to the experiments made by Dr. Wilson upon 1,154 persons at Edinburgh, in 1852–3, one person in every eighteen had this imperfection; 1 in 55 confound red with green; 1 in 60 confound brown with green; 1 in 46 confound blue with green. Hence 1 in every 17–9 persons ought to be color blind. Instead of this being the case, however, according to our experience, we have never known but one case of color blindness; we are therefore skeptical of the correctness of Dr. Wilson's experiments.

In San Francisco there are four establishments in which sewing machines are used for sewing brown linen drill into bags, for miners, to contain their gold dust.

Literary Notices.

Putnam's Monthly, for April, is one of the best, if not the very best yet published. The first article is on "Religious Freedom in America,"—tracing its rise and progress. All the other articles are equally good. Published by Dix & Edwards, 321 Broadway, N. Y.

Blackwood's Magazine, for this month, re-published by L. Scott & Co., 54 Gold st., this city, is an excellent number; it contains a manly review of Caird's sermon on "Religion of Common Life;" and the other articles are equally able, vigorous, and interesting.

Knickerbocker Magazine—The April number is upon our table, and of all the magazines which come to our office there is none we prize so highly as the Knickerbocker. It is always full of fun, and the matter is original. Samuel Huestion, publisher, 348 Broadway, N. Y. $3 per annum.

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